

**CHARTER TOWNSHIP OF VAN BUREN
PLANNING COMMISSION AGENDA
Wednesday, May 9, 2018 – 7:30 PM, Board of Trustees Room**

CALL TO ORDER:

ROLL CALL:

APPROVAL OF AGENDA:

MINUTES:

ITEM #1: Approval of minutes from the regular meeting of April 25, 2018.

CORRESPONDENCE:

PUBLIC HEARING:

UNFINISHED BUSINESS:

NEW BUSINESS:

ITEM #1: CASE 17-036 – FINAL SITE PLAN APPROVAL

TITLE: THE APPLICANT, CONSTELLIUM, IS REQUESTING FINAL SITE PLAN APPROVAL TO CONSTRUCT A 50,551 SQUARE FOOT ADDITION TO AN EXISTING INDUSTRIAL BUILDING AND TO CONSTRUCT A 20,000 SQUARE FOOT DETACHED ACCESSORY BUILDING FOR STORAGE.

LOCATION: The property is located at 6331 Schooner Drive, Van Buren Township, MI 48111 which is on the south side of Michigan Avenue, east of Denton Road.

ACTION ITEMS:

- A. Presentation by the applicant
- B. Presentation by Township staff.
- C. Planning Commission discussion.
- D. Planning Commission considers final site plan approval.

ITEM #2: CASE 17-036 – TREE REMOVAL PERMIT APPROVAL

TITLE: THE APPLICANT, CONSTELLIUM, IS REQUESTING TREE REMOVAL PERMIT APPROVAL TO CONSTRUCT A 50,551 SQUARE FOOT ADDITION TO AN EXISTING INDUSTRIAL BUILDING AND TO CONSTRUCT A 20,000 SQUARE FOOT DETACHED ACCESSORY BUILDING FOR STORAGE.

LOCATION: The property is located at 6331 Schooner Drive, Van Buren Township, MI 48111 which is on the south side of Michigan Avenue, east of Denton Road.

ACTION ITEMS:

- A. Presentation by the applicant
- B. Presentation by Township staff.
- C. Planning Commission discussion.
- D. Planning Commission considers final site plan approval.

GENERAL DISCUSSION:

ADJOURNMENT:

**CHARTER TOWNSHIP OF VAN BUREN
PLANNING COMMISSION
APRIL 25, 2018
MINUTES - DRAFT**

Chairperson Thompson called the meeting to order at 7:31 p.m.

ROLL CALL:

Present: Kelley, Atchinson, Budd, Boynton, Jahr, Franzoi and Thompson.

Excused: None.

Staff: Director Best and Secretary Harman.

Planning Representatives: None.

Audience: Two (2).

APPROVAL OF AGENDA:

Motion Kelley, Franzoi second to approve the agenda of April 25, 2018 as presented.

Motion Carried.

APPROVAL OF MINUTES:

Motion Budd, Kelley second to approve the regular meeting minutes of March 14, 2018 as presented. Motion Carried.

NEW BUSINESS:

ITEM # 1 18-003 – TEMPORARY LAND USE APPROVAL

TITLE: THE APPLICANT, ATCHINSON FORD, IS REQUESTING A TEMPORARY LAND USE PERMIT TO PARK LEASE TURN IN VEHICLES AND NEW VEHICLE INVENTORY.

LOCATION: THE PROPERTY IS LOCATED AT 8705 BELLEVILLE ROAD, VAN BUREN TOWNSHIP, MI 48111, WHICH IS ON THE EAST SIDE OF BELLEVILLE ROAD, NORTH OF TYLER ROAD.

Motion Kelley, Jahr second to recuse Medina Atchinson. Motion Carried.

Craig Atchinson gave the presentation. Mr. Atchinson is seeking a temporary land use permit to address the need for additional vehicle parking space for returning lease vehicles and new vehicle inventory for Atchinson Ford.

Director Best presented Director Akers' staff review letter dated 4-21-18 recommending approval of the application subject to the following conditions:

1. The applicant obtain approval for the temporary vehicle parking area from the Van Buren Township Fire Marshal. This condition has been met. (letter attached)
2. The applicant shall maintain setbacks which are consistent with the landscape buffering standards in the Township's Zoning Ordinance.

3. Vehicles parked immediately adjacent to Belleville Road shall be parked with the front of the vehicle facing away from Belleville Road and adjacent properties in order to avoid headlight glare.
4. The site shall be maintained in a clean manner and trash will be properly disposed of.
5. The hours of operation for the temporary vehicle parking area shall mirror the hours of operation for the Atchinson Ford dealership.
6. That any exterior lighting or signs be reviewed and approved by the Director of Planning & Economic Development for consistency with the Zoning Ordinance, prior to their installation.
7. That the temporary land use permit is valid for a period of one year ending May 1, 2019.

Director Best presented the Fire Marshal's approval letter dated 4-23-18.

Commissioners discussed how many vehicles would be on the lot, spacing around the parked vehicles, whether customers will be allowed on the lot, if the office building on the property would remain and if the property is or will be fenced. There will be approximately 200 vehicles parked on the lot with space around them for movement, it is not the intention of the applicant to have customers on the lot, the office building belongs to the property owner and the applicant will repair the existing fence on the property to make sure the area is secured.

No questions from the audience.

Motion Kelley, Franzoi second to grant Atchinson Ford a temporary land use permit to park lease turn in vehicles and new vehicle inventory at the property located at 8705 Belleville Road based on the analysis and subject to the recommendations in Director Akers' staff review letter dated 4-21-18 and the Fire Department review letter dated 4-23-18. Motion Carried. (Letters Attached)

GENERAL DISCUSSION:

ADJOURNMENT:

Motion Boynton, Kelley second to adjourn at 7:46 p.m. Motion Carried.

Respectfully submitted,

Christina Harman
Recording Secretary

PLANNING & ZONING APPLICATION

Case number _____

Date Submitted _____

APPLICANT INFORMATION

Applicant Desine Inc., Wayne M. Perry **Phone** 810-227-9533
Address 2183 Pless Drive **Fax** 810-227-9460
City, State Brighton, Michigan **Zip** 48114
E:mail waynep@desineinc.com **Cell Phone Number** _____
Property Owner ARCCSVBTMI001, LLC **Phone** _____
(if different than applicant)
Address 6331 Schooner Drive **Fax** _____
City, State Belleville, Michigan **Zip** 48111
Billing Contact Jason Ellerson **Phone** 734-879-9726
Address 6331 Schooner Drive **Fax** _____
City, State Belleville, Michigan **Zip** 48111

SITE/ PROJECT INFORMATION

Name of Project Constellium manufacturing addition project
Parcel Id No. V125-83- 017-99-0014-703 **Project Address** 6331 Schooner Drive

Attach Legal Description of Property

Property Location: On the Southeast Side of Schooner Road; Between Beck Road and Denton Road. **Size of Lot** Width 1,013' Depth 1,149'
Acreage of Site 27.93 **Total Acres of Site to Review** 6.42 **Current Zoning of Site** M-2
Project Description: Construction of a 50,551 square foot building addition and a 20,000 square foot detached, accessory structure for storage, including related site improvements consisting of parking areas, drives, sidewalks, utilities, landscaping and lighting.

Is a re-zoning of this parcel being requested? No **YES (if yes complete next line)** NO
Current Zoning of Site M-2 **Requested Zoning** N/A

SPECIAL PERMIT INFORMATION

Does the Proposed Use Require Special Approval? No **YES (if yes complete next line)** NO
Section of Zoning Ordinance for which you are applying _____
Is there an official Woodland within parcel? No **Woodland acreage** N/A
List total number of regulated trees outside the Woodland area? 645 **Total number of trees** 645
Detailed description for cutting trees Removal of 81 trees within the limits of clearing as depicted on plans dated November 22, 2017 prepared by Desine Inc.

If applicable application **MUST** be accompanied with a Tree Survey or statement of no trees, which incorporates all the requirements listed in Section 4.45 of Zoning Ordinance 6-2-92, as amended.

OWNER'S AFFIDAVIT

ARC CSVBTMI001, LLC

Print Property Owners Name



Michael Anderson, Authorized Signatory
Signature of Property Owner

KATHERINE MARIE McALLISTER
Notary Public, State of New York
No. 01MC6332191
Qualified in New York County
Commission Expires 10/26/2019

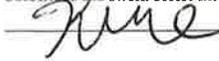
2/7/2018

Date

STATE OF New York
COUNTY OF New York

The undersigned, being duly sworn, deposes and says that the foregoing statements and answers herein contained and accompanied information and date are in all respects true and correct.

Subscribed and sworn before me this 7th day of February, 2018.

 Notary Public, New York County, NY My Commission expires October 26th, 2019

Rev 1/12/06



Charter Township of Van Buren

BOARD OF TRUSTEES

SUPERVISOR
Kevin McNamara

CLERK
Leon Wright

TREASURER
Sharry A. Budd

TRUSTEE
Sherry A. Frazier

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Kevin Martin

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Reggie Miller

TRUSTEE
Paul D. White

May 4, 2018

Van Buren Township Planning Commission
46425 Tyler Road
Van Buren Township, MI 48111

RE: Case 17-036 Constellium Addition Final Site Plan Review

Commissioners,

The following is the final site plan review of the plans provided for the proposed addition and the proposed accessory building at 6331 Schooner Drive. Please note that this process differs from our typical process as the applicant has elected to submit construction drawings prior to preliminary site plan approval. It is due the earlier submittal and approvals from our Township Engineer and Wayne County that we are able to consider this project for final site plan approval prior to obtaining preliminary site plan approval. We have completed our review based upon the standards of the Township's Zoning Ordinance. Please consider the following:

1. Scope: The applicant has proposed to construct a 50,551 sq. ft. addition to the existing building and construct a 19,000 detached accessory building at 6331 Schooner Drive.
2. Height and Bulk: Required setbacks (Addition): Front – 60' Side-50' Rear-50'; Proposed Setbacks: Front- 187.6' Side- 59.5' Rear- ~300'; Required Height (Addition) – 40'; Proposed Height – 40'; Required Lot Coverage (Total) – 35%; Proposed Lot Coverage – 32.4%. Based on this section the proposed addition is compliant with the Township's height and bulk standards for the district.
3. Required Site Plan Data: We have reviewed the site plan based upon the required items in Article 12 of the Township's Zoning Ordinance. The proposed site plan is compliant with the required items in this article.
4. Zoning and Use: The property is zoned M-2, General Industrial and the activity at the site falls under the Manufacturing and Processing (Light) land use which is a permitted use in the M-2 General Industrial district. Additionally, the fabric structure is considered an accessory building which is also a permitted use in the district.
5. Site Layout & Truck Circulation: The site layout is primarily existing and staff has identified no issues with the current layout. The Fire Marshall has reviewed the circulation on the site and has recommended approval.
6. Architecture: The elevations of the addition are designed to match the architecture of the current building. Due to this staff has no issues with the proposed addition. The accessory structure has been described as a fabric type structure which is anchored into the ground. Further details will need to be provided when a building permit is applied for, but at this time staff has no concerns regarding the accessory building.
7. Parking and Loading: On previous approved site plans for this facility we have authorized a modified parking standard which is one (1) space per employee on the peak shift plus enough spaces to cover shift change. This is the modified standard which has been proposed. Based on the prior approvals



Charter Township of Van Buren

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for the site, staff is recommending that the Planning Commission approve the modified parking standard. In addition to this the applicant has provided sufficient barrier free parking spaces to comply with the ordinance.

8. Site Lighting: Based on the provided photometric plans the proposed lighting additions do not exceed the 0.5 foot candle requirement at the adjacent property lines. In addition to this the cut sheets for the light fixtures depict lighting fixtures which are cut-off and down shielded in compliance with the Zoning Ordinance.
9. Woodland and Tree Preservation: I have reviewed the tree removal plan as well as the landscaping plan for compliance with this section of the Zoning Ordinance. The vast number of trees which are proposed to be removed are removable tree species such as Silver Maples or Cottonwood trees. The applicant will be required to replace 16 of the trees which are being removed. The applicant has identified these replacement trees on their site plan with permissible species and of adequate sizes. Due to this we will be recommending approval of a tree removal permit for this project.
10. Landscaping and Screening: Many of the landscaping and screening standards were originally met with their most recent 2014 addition to the building. As our requirements have changed when the new Zoning Ordinance was adopted, the applicant is adding the required shrubs and ornamental trees to the frontage area of the landscaping. Regarding the frontage landscaping the applicant has complied with the minimum frontage landscaping requirements. The applicant has also added the sufficient landscaping area for the new parking lot area and is compliant with this area as well. Based on the Zoning Ordinance the applicant is compliant with the landscaping requirements.
11. Signs: There are currently no new signs proposed for this site.
12. Outdoor Storage: There is currently outside storage of plastic totes which is not accounted for on the site plan. Upon speaking with the applicant the intent is to construct the accessory building in order to move any non-approved outdoor storage items into the accessory building. This brings the property into compliance and addresses an ordinance violation on the site.
13. Accessory Building: The proposed accessory building is compliant with the standards in the recent Zoning Ordinance amendment that the Planning Commission has forwarded to the Township Board regarding accessory buildings. The first reading of the Ordinance amendment has been approved by the Township Board and the second reading is scheduled for the May 15, 2018 Township Board meeting. As this amendment is still working its way through the approval process staff will recommend that final site plan approval be contingent upon the Township Board approving the second reading of the Zoning Ordinance amendment. The following item will be a review of this based on the new proposed standards.

The following are the required height and bulk standards for the accessory building: Required setbacks: Front – 60’ Side-50’ Rear-50’ Principal Building – 24’; Proposed Setbacks: Front- N/A’ Side- +300’ Rear- 50’ Principal Building – 60’; Required Height– 40’; Proposed Height – 33.5’. Regarding the proposed size of the accessory building, under the new zoning ordinance amendment the Planning Commission does have the ability to exceed the maximum lot coverage standard of 4,800 square feet using the same approval process as the principal use. In this case the Planning Commission can simply approve the accessory building via site plan approval. This will need to be specified in the approval.



Charter Township of Van Buren

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Recommendation

Based on the comments and findings in this review letter dated May 4, 2018, the engineering review letter dated May 3, 2018, and the fire department review letter dated April 13, 2018, I am recommending final site plan approval of the plans dated April 11, 2018 with the following considerations/conditions:

1. Approval is conditioned upon the Township Board approving the Zoning Ordinance Amendment 04-03-18 to amend the Zoning Ordinance to modify certain accessory building regulations.
2. The Planning Commission approves the modified parking standard mentioned above.
3. The Planning Commission approves the 20,000 square foot accessory building which exceeds the maximum lot coverage of 4,800 square feet.

If you have any questions or would like to discuss this matter further, please contact me.

Sincerely,

Ron Akers, AICP
Director of Planning and Economic Development

May 3, 2018

Project No. 180386

Charter Township of Van Buren
46425 Tyler Road
Van Buren, MI 48111

Attention: Ms. Carol Thompson, Chairperson
Van Buren Township Planning Commission

Re: Constellium Facility Expansion
6331 Schooner Drive
Belleville, MI 48111
Construction and Final Site Plan Approval

Dear Ms. Thompson:

Fishbeck, Thompson, Carr & Huber, Inc. (FTCH) has completed the review of the Construction Drawings and Final Site Plans, dated April 11, 2018, for the proposed Constellium Facility Expansion Project. We have attached a summary of our review comments for your use.

This proposed project entails: a 50,551-square foot (sqft) building addition located on the south side of the existing facility; a 20,000 sqft free standing clear span fabric structure to function only as cold storage – located on the east side of the existing facility; an expansion of the existing stormwater detention basin – located at the northeast side of the existing facility and an expansion of the existing parking lot located southwest of the existing facility. An additional fire lane is being added to facilitate access to the south side of the existing and proposed buildings.

We have previously reviewed the preliminary Site Plan and recommended approval in our letter dated February 27, 2018. In addition to the comments and requirements included in our February 27, 2018, letter, we offer the following Construction and Site Plan review comments:

General

1. Final site plans must be sealed by a licensed professional engineer, registered in the State of Michigan.
2. The title sheet shall include all Property information for the site including Parcel/Tax ID Number.
 - *This information must be included on the construction set of plans and approved by the Engineer, before a preconstruction meeting will be scheduled by Van Buren Township (Township) Engineer.*

Water Main Service

1. The submittal of the new watermain easement will be required prior to the Township scheduling a preconstruction meeting.
 - *This information must be provided and approved before a preconstruction meeting will be scheduled by the Township Engineer.*
2. The construction plans must indicate the type of Hydrant that is required in accordance with the township standards (EJIW 5BR-250 conforming to AWWA C-502).
 - *This information must be included on the construction set of plans and approved by the Engineer, before a preconstruction meeting will be scheduled by the Township Engineer.*

General Plan Sheet Comments

1. *(Previous Comment No. 5) PR: Storm sewer size is indicated incorrectly on the profile for 36-inch sewer between CB-13 and CB-131. It measures as 30 inches, but should be a 36 inches.*

Recommendation

We are recommending the referenced Construction Drawings and Final Site Plan be approved as noted, subject to the bulleted comments being satisfactorily addressed prior to the preconstruction meeting being scheduled by the Township Engineer or otherwise noted accordingly.

If you have any questions regarding this project, please contact me at 248.324.2137 or pjkammer@ftch.com.

Sincerely,

FISHBECK, THOMPSON, CARR & HUBER, INC.



Paul J. Kammer, PE



David L. Potter, PE, CSI-CCCA

ag2
Email

cc: Mr. James Taylor, Director of Public Works
Mr. Ron Akers, Van Buren Township
Mr. Wayne M. Perry, PE, Desine, Inc.
Desine, Inc.
2183 Pless Drive
Brighton, Michigan 48114

David C. McInally II
Fire Marshal
O: 734-699-8900 ext 9416

Van Buren Fire Department
46425 Tyler Rd
Belleville, MI 48111

April 13, 2018

Director of Building and Planning
46425 Tyler Road
Belleville, MI 48111

Re: Constellium
6331 Schooner Dr.
Van Buren Twp. MI. 48111

To whom it may concern:

I have reviewed a revised site plan All NFPA guidelines adopted by the Township of Van Buren were used in referencing this project.

Project Overview:

The submitted site plans are for an expansion of the building by 50,551 SF, parking lot reconfiguration, and a proposed fabric structure for rack storage. After review I can approve **WITH EXCEPTIONS**, the submitted plan.

- ~~1. Hydrant that is located next to remote FDC is not shown on plans.~~
2. **NFPA 1 2012 11.10.1 In all new and existing buildings, minimum radio signal strength for fire department communications shall be maintained at a level determined by the AHJ.**

The fire department requires involvement in the continuing plan review, inspection, and Certificate of Occupancy process and will require various inspections during the construction phases and immediately prior to opening to verify compliance with the appropriate codes. One set of as built construction drawings, schedules, and details, as it relates to construction, fire protection and response, will be required, as well as a **digital cad layout** of the building by this department prior to our final C of O inspection.

Our Mission: The members of the Van Buren Fire Department shall work together in a professional and caring way to protect life and property from the adverse effects of fire, trauma, illness and dangerous conditions. Our services will be provided in a fair, honest, and ethical manner with the highest respect and dignity to all.

Review and approval by the Authority Having Jurisdiction shall not relieve the applicant of the responsibility of compliance with these codes.

Respectfully submitted,

David C Mcnally
Fire Marshal

LEGAL DESCRIPTION INCLUDING STATE PLANE COORDINATES

Situated in the Township of Van Buren, County of Wayne and State of Michigan, and described as follows:
 Being a part of the Northeast 1/4 of Section 5, Town 3 South, Range 8 East, Van Buren Township, Wayne County, Michigan, and described as follows:
 BEGINNING S88°09'00"W (S87°22'59"W SPCS) 1215.10 feet and S04°28'18"E (S05°14'19"E SPCS) 1011.81 feet from the Northeast Corner of Section 5; thence S04°28'18"E (S05°14'19"E SPCS) 1149.42 feet; thence S77°31'39"W (S76°45'38"W SPCS) 1013.28 feet; thence N04°28'18"W (N05°14'19"W SPCS) 1079.12 feet; thence along a curve concave to the West, having a radius of 430.00 feet and a chord bearing N09°28'52"E (N08°42'50"E SPCS) 207.36 feet; thence N04°28'18"W (N05°14'19"W SPCS) 10.09 feet; thence N85°31'42"E (N84°45'41"E SPCS) 953.42 feet to the Place of Beginning, Containing 27.93 acres, more or less. Subject to and together with all easements and restrictions affecting title to the above described premises.

NOTE: "SPCS" denotes line bearing value related to the Grid North of State Plane Coordinated System as defined in Michigan Coordinate System Act 9 of 1964, Section 5a(c).

WAYNE COUNTY DPS GENERAL NOTES:

1. ALL WORK WITHIN THE WAYNE COUNTY ROAD RIGHT-OF-WAY(ROW) AND DRAIN EASEMENT SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND GENERAL SPECIFICATIONS, INCLUDING SOIL EROSION AND SEDIMENT CONTROL OF THE WAYNE COUNTY DEPARTMENT OF PUBLIC SERVICES, AND MDT 2012 SPECIFICATIONS FOR CONSTRUCTION.
2. THESE PLANS ARE NOT VALID WITHOUT ATTACHMENT OF THE WAYNE COUNTY PERMIT SPECIFICATIONS FOR CONSTRUCTION WITHIN THE ROAD ROW, PARKS, DRAIN EASEMENT OR SANITARY SEWER UNDER JURISDICTION OF THE WAYNE COUNTY (07/01/93) REVISED (12/15/2004).
3. CONTRACTOR SHALL CONTACT MISS DIG AT 811 TO IDENTIFY AND FLAG-MARK THE LOCATIONS OF ALL UNDERGROUND UTILITIES AT THE PROPOSED CONSTRUCTION AREAS PRIOR TO START OF CONSTRUCTION, AND SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS AND ELEVATIONS OF ALL UNDERGROUND UTILITIES, AND RESOLVE ANY CONFLICT BETWEEN THE PROPOSED WORK AND THE EXISTING UNDERGROUND OR ABOVEGROUND UTILITIES.
4. CONTRACTOR SHALL MAINTAIN 18" MINIMUM VERTICAL CLEARANCE AND 3 FEET MINIMUM HORIZONTAL CLEARANCE BETWEEN THE PROPOSED AND EXISTING UTILITIES. ANY PROPOSED UTILITY PERMITTED TO CROSS UNDER THE ROAD OR DRAIN, MUST BE PLACED A MINIMUM OF 1 FEET BELOW THE LOWEST POINT OF THE ROAD, OR 6 FEET BELOW THE DRAIN BOTTOM. OVERHEAD WIRES/CABLES MUST BE INSTALLED 18 FEET MINIMUM ABOVE THE ROAD CENTERLINE. TO RELOCATE ANY UTILITY WITHIN THE ROAD ROW, THE CONTRACTOR SHALL COORDINATE THE RELOCATION WITH THE UTILITY COMPANY AND AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
5. ALL SURVEY MONUMENTS CORNERS AND BENCH MARKS LOCATED WITHIN THE CONSTRUCTION AREA MUST BE PRESERVED IN ACCORDANCE WITH PUBLIC ACT 74 AS AMENDED (INCLUDING ACT 34, P.A. 2009) AND AS PER WAYNE COUNTY PERMIT RULE 15. THE PERMIT HOLDER AND CONTRACTOR SHALL COORDINATE THE WORK WITH A PROFESSIONAL SURVEYOR LICENSED IN THE STATE OF MICHIGAN DURING CONSTRUCTION ACTIVITIES FOR THE PURPOSE OF WITNESSING, PRESERVING OR REPLACING SURVEY MONUMENTS AND MONUMENT BOXES.
6. EXPOSURE OF ANY UTILITIES UNDER THE PAVEMENT WILL NOT BE PERMITTED, UNLESS APPROVED BY THE WAYNE COUNTY ENGINEER. PAVEMENT REMOVAL AND REPLACEMENT SHALL BE PERFORMED PER APPLICABLE WAYNE COUNTY STANDARD DETAILS AND AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
7. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS WITHIN THE WAYNE COUNTY ROAD ROW AND DRAIN EASEMENT WITH 3" TOPSOIL, THIN SEED MIX AND MULCH. SLOPES STEEPER THAN 1 ON 3 SHALL BE RESTORED BY PLACING SOD ON 2" TOPSOIL.
8. ALL BACKFILLS UNDER OR WITHIN 3 FEET OF THE PROPOSED OR EXISTING PAVEMENT, CURB OR SIDEWALK SHALL CONFORM TO THE WAYNE COUNTY TRENCH "B" BACKFILL REQUIREMENTS. TRENCH "A" BACKFILL MAY BE USED WITHIN THE ROAD ROW AREAS UNDER CONDITIONS OTHER THAN THOSE SPECIFIED FOR TRENCH "B".
9. CONTRACTOR IS RESPONSIBLE FOR RESTORING OR REPLACING ALL DISTURBED LANDSCAPED AREAS, SPRINKLER SYSTEMS, FENCES, SIGNS, MAIL BOXES, ETC. WITHIN THE WAYNE COUNTY ROAD ROW AND/OR AS DIRECTED BY THE COUNTY ENGINEER.
10. CONTRACTOR SHALL MAINTAIN TWO-WAY TRAFFIC AT ALL TIMES, OTHERWISE, DETOURING TRAFFIC MUST BE PERMITTED. APPROVED PLANS. ALL SIGNING AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF M.M.U.T.C.D.
11. MAINTAIN A SAFE AND ADEQUATE TRAVEL ROUTE FOR PEDESTRIANS AT ALL TIMES THROUGHOUT THE PROJECT DURATION.
12. TUNNELING, BORING AND JACKING OPERATIONS SHALL BE IN ACCORDANCE WITH THE WAYNE COUNTY SPECIFICATIONS AND DETAILS. BORE PITS SHALL BE PLACED AT A MINIMUM 10 FEET FROM THE BACK OF CURB OR EDGE OF PAVEMENT.
13. REMOVE ALL ABANDONED CONDUITS FROM THE COUNTY ROADS ROW OR AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
14. CONTRACTOR SHALL PROVIDE COLD WEATHER PROTECTION FOR ALL PROPOSED CONCRETE WORK (PAVEMENTS, SIDEWALKS, DRIVE APPROACHES, ETC.) AS DIRECTED BY THE WAYNE COUNTY ENGINEER.
15. OVERNIGHT VEHICLE PARKING AND STORAGE OF CONSTRUCTION MATERIALS AND EQUIPMENTS ARE NOT PERMITTED WITHIN THE WAYNE COUNTY ROADS RIGHT-OF-WAY.
16. CONTRACTOR SHOULD OBTAIN SOIL EROSION AND SEDIMENTATION CONTROL PERMIT FROM THE WAYNE COUNTY DOE. CONTACT MS. WENDY LUKIANOFF AT (734) 326-5565.
17. CONTRACTOR SHALL NOTIFY THE WAYNE COUNTY TRAFFIC SIGNAL SHOP AT (734) 955-2154 AT LEAST 72 HOURS PRIOR TO START OF WORK AT OR NEAR ANY SIGNALIZED INTERSECTIONS.
18. CONTRACTOR SHALL NOTIFY WAYNE COUNTY 72 HOURS PRIOR TO START OF CONSTRUCTION. CONTACT THE PERMIT OFFICE AT (734) 595-6504 EXTENSION 2009.

PERMITS REQUIRED

- VAN BUREN TOWNSHIP
- WAYNE COUNTY SOIL EROSION AND SEDIMENTATION CONTROL PERMIT
- WAYNE COUNTY STORM WATER PERMIT
- MDEQ WATER SUPPLY PERMIT
- MDEQ NPDES PERMIT

WCDPS PLAN REVIEW #: R18-026

WATER MAIN QUANTITIES

Item	Water Main Construction	Quantity	Unit
1	8" CL54 D.I. Water main	687	L.F.
2	6" CL54 D.I. Water main	190	L.F.
3	8" Gate valve in well	1	Each
4	6" Gate valve in well	3	Each
5	Hydrants	3	Each
6	8"x8"x6" Tee	3	Each
7	8" 45 Degree Bend	5	Each
8	8" 22 1/2 Degree Bend	1	Each
9	8" 11 1/4 Degree Bend	2	Each
10	8" 90 Degree Bend	1	Each
11	8" Valve well	1	Each
12	Remote FDC	1	Each

STORM SEWER QUANTITIES

Item	Storm Sewer Construction	Quantity	Unit
1	2' Diam. Inlet	1	EA.
2	4' Diam. Catch Basin	11	EA.
3	4' Diam. Yard Basin	2	EA.
4	5' Diam. Catch Basin	5	EA.
5	5' Diam. Manhole	1	EA.
6	12" SCH40 PVC	156	L.F.
7	12" 76-4 RCP	510	L.F.
8	15" 76-4 RCP	136	L.F.
9	36" 76-4 RCP	676	L.F.

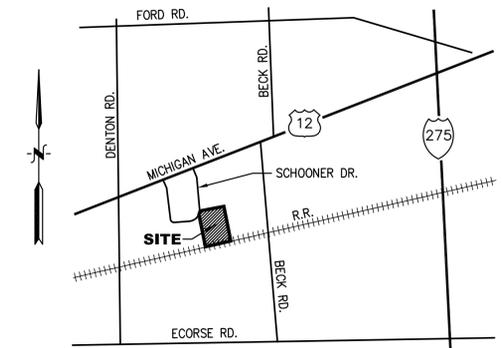
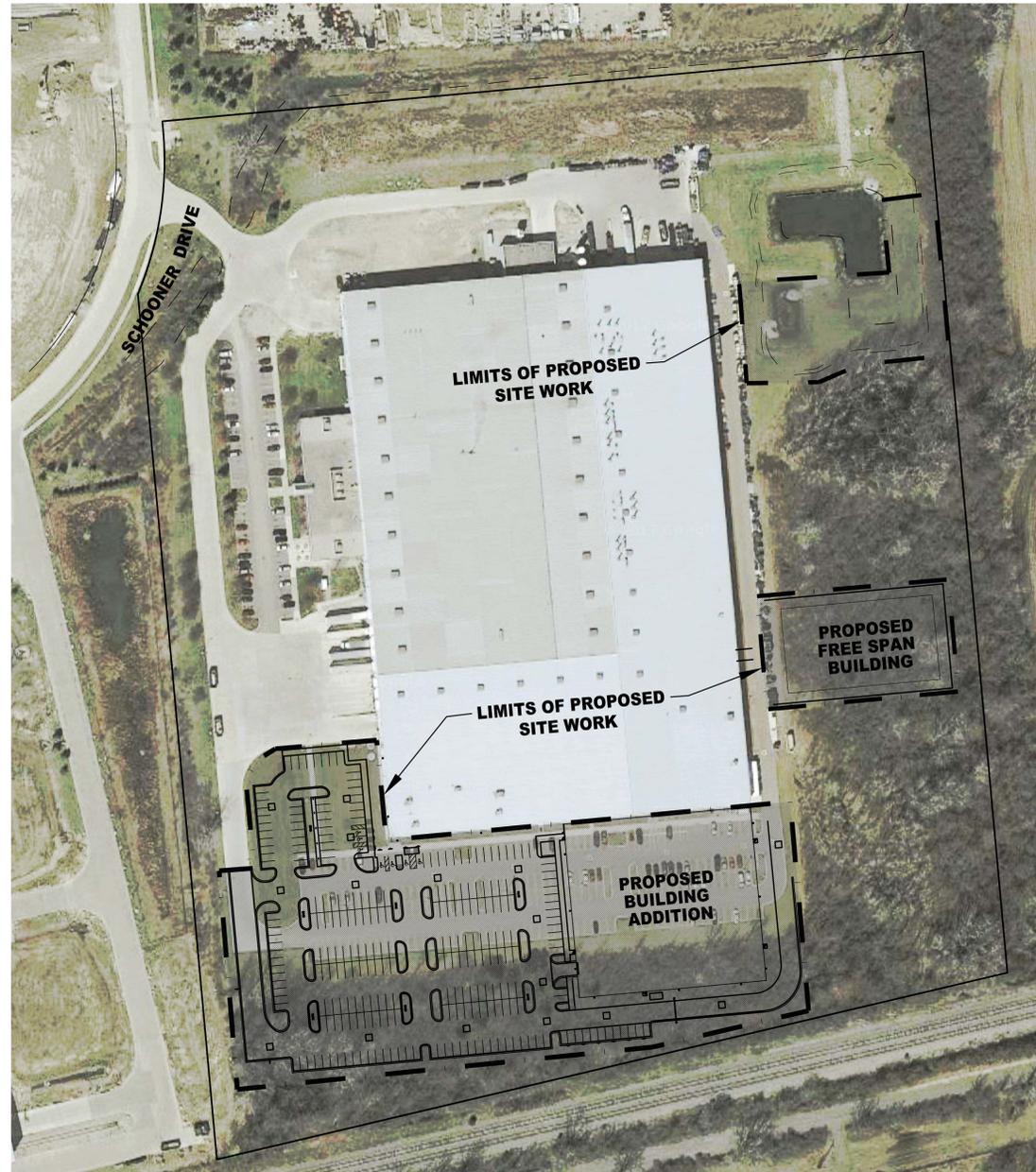
PAVEMENT QUANTITIES

Item	Pavement Construction	Quantity	Unit
1	Bituminous Pavement	116,584	SF.
2	Concrete Pavement	31,546	SF.
3	Concrete Walk	4,114	SF.
4	Concrete Curb	3,111	L.F.

SITE DEVELOPMENT PLANS FOR MANUFACTURING ADDITION



PART OF THE NORTH 1/2 OF SECTION 5, T.3.N, R.8E, VAN BUREN TOWNSHIP, WAYNE COUNTY, MICHIGAN



LOCATION MAP
NOT TO SCALE

SHEET INDEX

- EX EXISTING CONDITIONS AND DEMOLITION PLAN
- WD1 WOODLAND PLAN
- WD2 TREE INVENTORY LIST
- SP SITE PLAN
- FS FIRE SAFETY PLAN
- GR1 GRADING AND PAVING PLAN
- GR2 GRADING AND PAVING PLAN
- UT1 UTILITY PLAN
- UT2 UTILITY PLAN
- UT3 DETENTION BASIN EXPANSION PLAN & CALCULATIONS
- UT4 STORMWATER SYSTEM MANAGEMENT PLAN
- UT5 CONSTRUCTION STAKING/LAYOUT PLAN
- PR STORM SEWER PROFILES
- WA WATER MAIN PLAN & PROFILE
- DD DENTON DRAIN EASEMENT
- CS1-00-12 STORM WATER LIFT STATION
- ER1 SOIL EROSION CONTROL PLAN & DETAILS
- ER2 SOIL EROSION CONTROL NOTES & DETAILS
- WS WATERSHED PLAN AND DRAINAGE CALCULATIONS
- ES.1 PHOTOMETRIC PLAN
- ES.2 LIGHTING FIXTURE CUT SHEETS
- L-1 OVERALL PLAN
- L-2 PARKING LOT EXPANSION PLANTING PLAN
- L-3 DETENTION BASIN ENLARGEMENT PLAN & DETAILS
- DT1 SITE DEVELOPMENT NOTES & DETAILS
- DT2 SITE DEVELOPMENT NOTES & DETAILS
- MD-1 MISCELLANEOUS DETAILS
- ST-1 STANDARD STORM SEWER DETAILS
- SW-1 SIDEWALK DETAILS
- WM-1 STANDARD WATER MAIN DETAILS
- WM-2 STANDARD WATER MAIN DETAILS
- A1 ADDITION FLOOR PLAN
- A2 EXTERIOR ELEVATIONS OF ADDITION
- A3 FLOOR PLAN - FABRIC STRUCTURE
- A4 EXTERIOR ELEVATIONS OF FABRIC STRUCTURE

NOTES:
 ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS, SPECIFICATIONS AND GENERAL CONDITIONS OF VAN BUREN TOWNSHIP AND WAYNE COUNTY.
 THE DEVELOPER IS RESPONSIBLE FOR RESOLVING ANY DRAINAGE PROBLEMS ON ADJACENT PROPERTIES WHICH ARE THE RESULT OF THE DEVELOPER'S ACTIONS.

PLAN REVISIONS

11/22/17	SITE PLAN SUBMITTAL TO VAN BUREN TOWNSHIP
12/05/17	CONSTRUCTION PLAN SUBMITTAL TO VAN BUREN TOWNSHIP
03/01/18	REVISED PER WCDPS COMMENTS
04/11/18	SUBMITTED FOR CONSTRUCTION APPROVAL

MECHANICAL/ELECTRICAL ENGINEER
MEEC P.C.
 1415 GOLDSMITH
 PLYMOUTH, MI. 48170
 (734) 454-5516

LANDSCAPE ARCHITECT
VERT VERDE
 44960 ALBERT DRIVE
 PLYMOUTH, MI. 48170
 (734) 249-3568

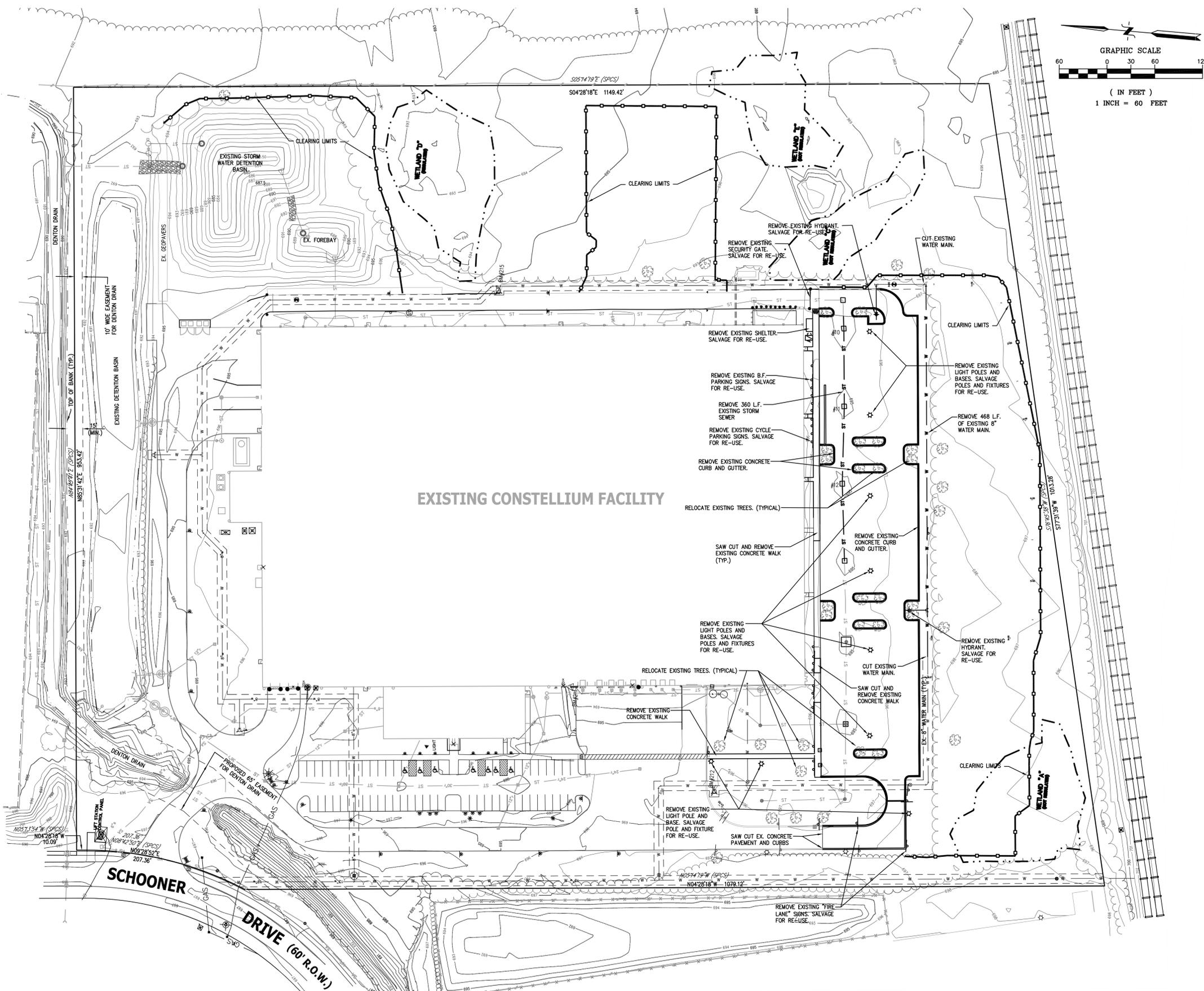
OWNER
ARC CSVBTMI001, LLC
 6331 SCHOONER DRIVE
 BELLEVILLE, MI. 48111
CONTACT: JASON ELLERSON
 (734) 879-9726

CIVIL ENGINEER/ SURVEYOR
DESINE INC.
 2183 PLESS DRIVE
 BRIGHTON, MI. 48114
 (810) 227-9533

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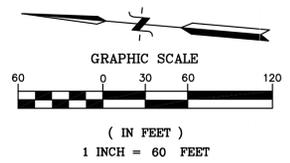
REVISED	SCALE: N/A
12-05-17	PROJECT No.: 9173300
04-11-18	DWG NAME: 3300-COV
PRINT: APR. 11, 2018	

DESINE INC.
 (810) 227-9533
 CIVIL ENGINEERS
 LAND SURVEYORS
 2183 PLESS DRIVE
 BRIGHTON, MICHIGAN 48114



LEGEND

- OU—OU— EXISTING TREE
- O—O— EXISTING OVERHEAD WIRES
- P—P— EXISTING POLE AND GUY
- E—E— EXISTING POWER POLE
- R—R— EXISTING AMERTECH RISER
- L—L— EXISTING LIGHT POLE
- S—S— EXISTING SIGNS
- C—C— EXISTING CONTOURS
- G—G— EXISTING CURB AND GUTTER
- F—F— EXISTING FENCE LINE
- GAS— EXISTING GAS LINE
- ST— EXISTING STORM SEWER
- #1— EXISTING STORM STRUCTURES
- SA— EXISTING SANITARY SEWER
- #1— EXISTING SANITARY MANHOLE
- #1— EXISTING SANITARY CLEANOUT



BOUNDARY LEGEND
 S05°14'19"E (SPCS) STATE PLANE COORDINATE SYSTEM
 S04°28'18"E 1149.42' LEGAL OF RECORD

- DEMOLITION NOTES:**
- The demolition specifications of the Local Municipality are a part of this work. Refer to the General Notes on the project plans for additional requirements.
 - Contractor shall contact the 811 Underground Public Utility Locating System or other appropriate local underground utility locating Agency, a minimum of three (3) working days prior to performing demolition work. Existing utility information on the project plans may be from information disclosed to this firm by the Utility Companies, Local, County or State Agencies, and/or various other sources. No guarantee is given as to the completeness or accuracy thereof. Prior to construction, locations and depths of all existing utilities (in possible conflict with the proposed improvements) shall be verified in the field.
 - Contractor shall contact the appropriate Agencies to coordinate disconnect of the electric, gas, phone, cable and other public utilities as necessary prior to performing demolition work.
 - Contractor shall contact the appropriate Agencies to coordinate removal and/or relocation of any underground and/or overhead public utility lines as necessary prior to performing demolition work.
 - Contractor shall recycle and/or dispose of all demolition debris in accordance with the appropriate Local, County, State and Federal regulations.
 - All bituminous and concrete pavement to be removed shall be saw cut at the limits of removal to provide for a clean straight edge for future abutment.
 - All existing irrigation lines to be removed shall be terminated at the limits of demolition or as necessary to allow for construction of the proposed site improvements. Ends of pipe shall be capped and the location of marked for future connection.
 - All existing water main and sanitary sewer to be removed shall be terminated at the limits of demolition or as indicated on the project plans. Temporary plugs shall be installed in the ends of pipe in accordance with the appropriate Agency and the locations of marked for future connection. Permanent plugs shall be installed in the ends of pipe in accordance with the appropriate Agency. The Contractor shall record the location of all permanent plugs and provide the location information to the appropriate Agency.
 - All existing storm sewer to be removed shall be terminated at the limits of demolition or as indicated on the project plans. Temporary plugs shall be installed in the ends of pipe in accordance with the appropriate Agency and the locations of marked for future connection. Permanent bulkheads shall be installed in the ends of pipe and/or openings in terminating structures in accordance with the appropriate Agency. The Contractor shall record the location of all permanent bulkheads and provide the location information to the appropriate Agency.
 - All existing light sources to be removed shall have their power cables removed up to the power source or properly terminated for future connection at the limits of demolition or as necessary to allow for construction of the proposed site improvements. Removal and termination of power cables shall be performed in accordance with local electric codes.
 - All existing utility meters to be removed shall be properly removed to allow for reuse. Any existing utility meters that are not to be reused as a part of this project shall be returned to the appropriate Agency.
 - All trenches and/or excavations resulting from the demolition of underground utilities, building foundations, etc., that are located within the 1 on 1 influence zone of proposed structures, paved areas and/or other areas subject to vehicular traffic shall be backfilled with MDOT Class III granular material (or better) to the proposed subgrade elevation. Backfill shall be placed using the controlled density method (12" maximum lifts, compacted to 95% maximum unit weight, Modified Proctor).

BENCHMARK
 DATUM BASED ON PREVIOUS BENCHMARK AS DEPICTED ON SITE PLANS PREPARED BY GHAFARI ASSOC., LLC, PROJECT No. 137403.001, REVISED DATE: AUGUST 8, 2014.

BM#211
 REFERENCE AS DEPICTED ON ABOVE. TOP OF WALL AT NORTHWEST CORNER OF #6331 WEST WALL. ELEVATION = 696.39 (NGVD 29) REF: POINT #211

BM#212
 ARROW ON HYDRANT, LOCATED 175± FEET NORTHWEST OF THE SOUTHWEST BLDG CORNER (#6331). ELEVATION = 698.08 (NGVD 29)

BM#215
 ARROW ON HYDRANT, LOCATED NEAR THE MID-POINT OF EAST BLDG WALL (#6331). ELEVATION = 698.09 (NGVD 29)

DESIGN: WMP	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: L.F.		03-01-18	REVISED PER WCDPS REVIEW			
CHECK: WMP		04-11-18	REVISED PER WCDPS APPROVAL			

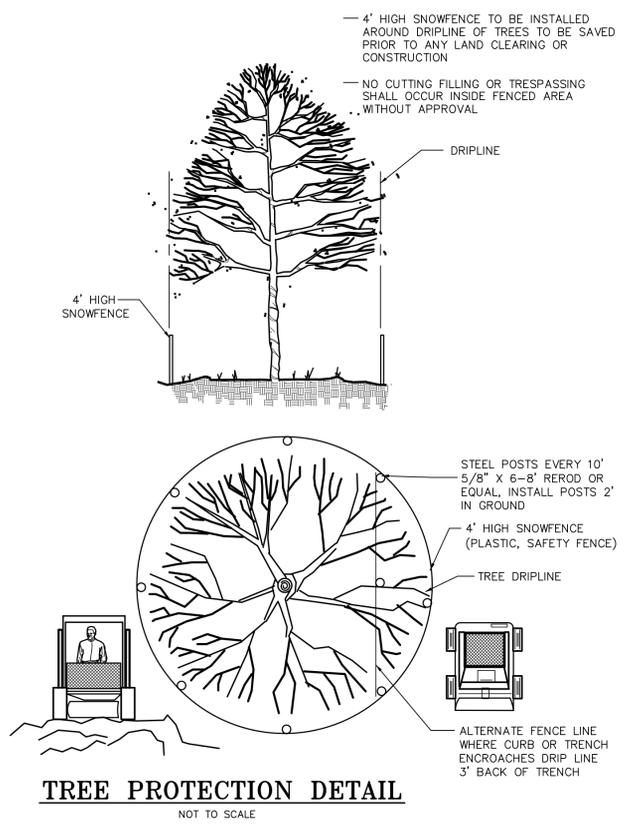
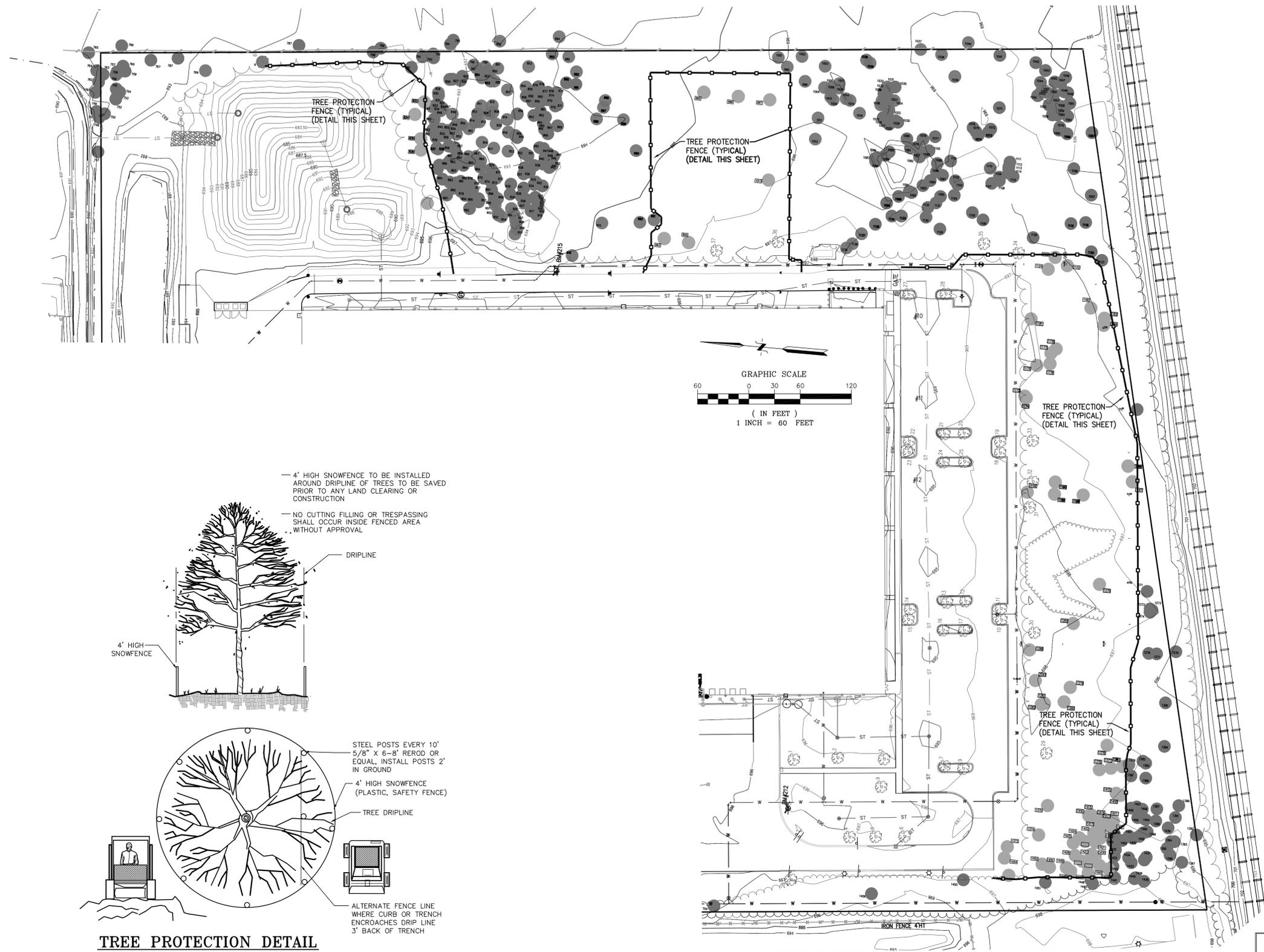


EXISTING CONDITIONS AND DEMOLITION PLAN

CLIENT: CONSTELLIUM
 6331 SCHOONER DRIVE
 VAN BUREN TWP, MI. 48111

SCALE: 1"=60'
 PROJECT No.: 9173300
 DWG NAME: 3300-SRTE
 ISSUED: APRIL 11, 2018

EX



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LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

DESIGN: WMP	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: L.F.		03-01-18	REVISED PER WOODS REVIEW			
CHECK: WMP						



WOODLAND PLAN

CLIENT: CONSTELLIUM
6331 SCHOONER DRIVE
VAN BUREN TWSP, MI. 48111

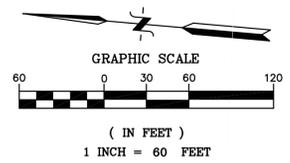
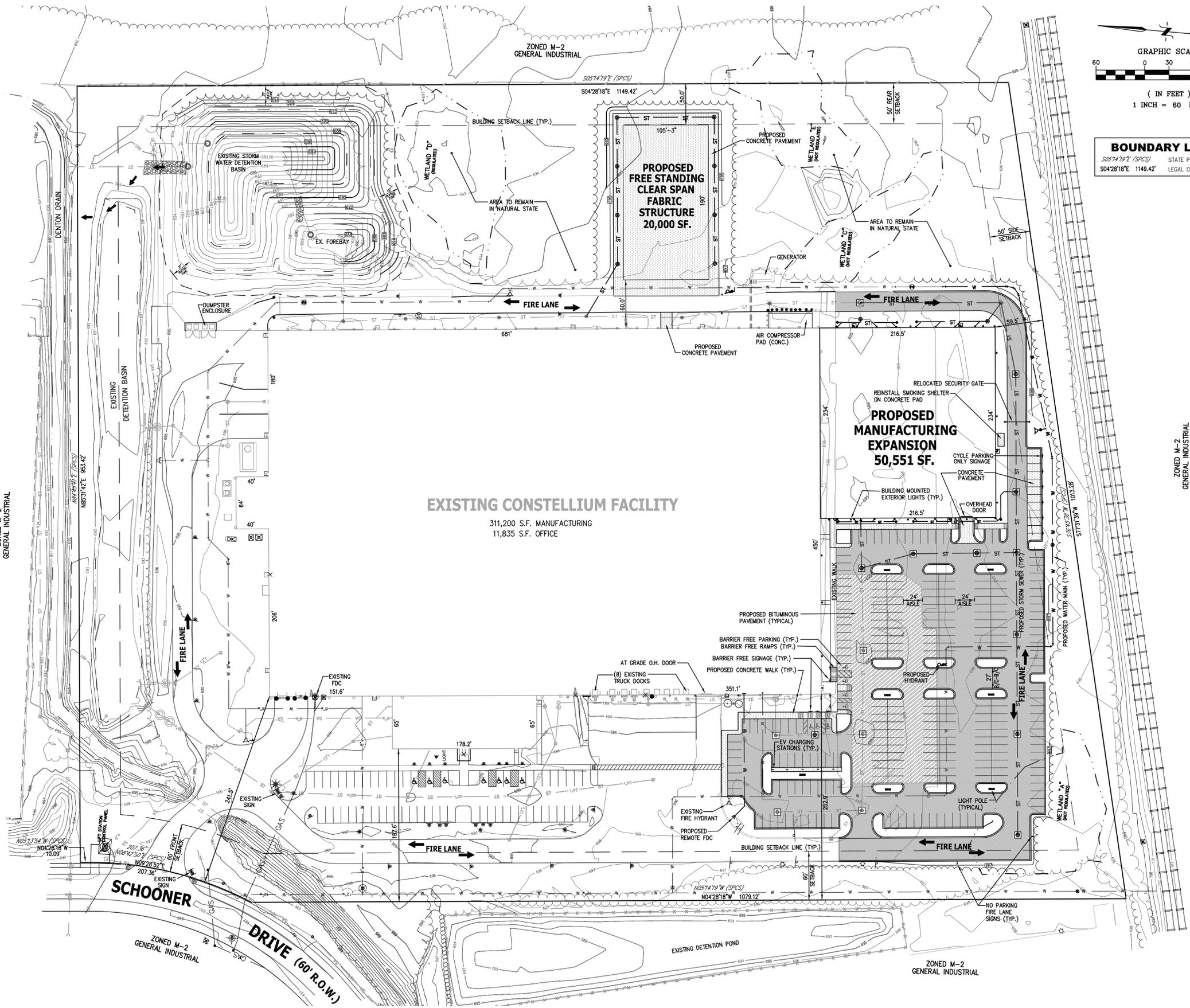
SCALE: 1"=60'
PROJECT No.: 9173300
DWG NAME: 3300-WD1
ISSUED: MAR. 01, 2018

WD1

TAG#	DBH	COMMON NAME	GENUS/SPECIES	STEMS	% ALIVE	LM
663	7"	Linden	Tilia americana			
664	7"	Red Maple	Acer rubrum			
665	9"	N. Pin Oak	Quercus palustris			
666	7"	Red Maple	Acer rubrum			
667	8"	Linden	Tilia americana			
673	8"	Linden	Tilia americana			
674	8"	Linden	Tilia americana			
675	9"	Red Maple	Acer rubrum			
677	6"	Red Oak	Quercus rubra			
678	5"	Red Oak	Quercus rubra			
679	5"	Red Oak	Quercus rubra			
680	5"	Douglas-Fir	Pseudotsuga menziesii			
681	5"	Blue Spruce	Picea pungens			
682	5"	Douglas-Fir	Pseudotsuga menziesii			
683	5"	Norway Spruce	Picea abies			
684	5"	Siberian Elm	Ulmus pumila			
685	6"	White Ash	Fraxinus americana			
686	8"	Douglas-Fir	Pseudotsuga menziesii			
687	8"	Douglas-Fir	Pseudotsuga menziesii			
688	8"	Douglas-Fir	Pseudotsuga menziesii			
689	9"	Douglas-Fir	Pseudotsuga menziesii			
690	10"	Douglas-Fir	Pseudotsuga menziesii			
691	8"	Linden	Tilia americana			
692	8"	Linden	Tilia americana			
693	6"	Linden	Tilia americana			
694	4"	Red Oak	Quercus rubra			
695	5"	Red Oak	Quercus rubra			
696	6"	N. Pin Oak	Quercus palustris			
697	6"	N. Pin Oak	Quercus palustris			
698	8"	N. Pin Oak	Quercus palustris			
699	7"	Linden	Tilia americana			
700	7"	Linden	Tilia americana			
701	7"	Linden	Tilia americana			
702	7"	Linden	Tilia americana			
703	6"	Linden	Tilia americana			
704	5"	Cottonwood	Populus deltoides			
706	5"	Red Oak	Quercus rubra			
707	6"	Red Oak	Quercus rubra			
708	7"	Red Oak	Quercus rubra			
709	5"	Red Oak	Quercus rubra			
710	5"	Red Oak	Quercus rubra			
711	7"	Red Oak	Quercus rubra			
712	7"	Douglas-Fir	Pseudotsuga menziesii			
713	7"	Blue Spruce	Picea pungens			
714	7"	Blue Spruce	Picea pungens			
715	5"	Blue Spruce	Picea pungens			
716	7"	N. Pin Oak	Quercus palustris			
717	6"	N. Pin Oak	Quercus palustris			
718	5"	Red Oak	Quercus rubra			
719	7"	N. Pin Oak	Quercus palustris			
720	5"	N. Pin Oak	Quercus palustris			
721	5"	Red Oak	Quercus rubra			
722	6"	Siberian Elm	Ulmus pumila			
726	8"	Norway Spruce	Picea abies			
747	11"	Cottonwood	Populus deltoides			
748	8"	Cottonwood	Populus deltoides			
749	9"	Cottonwood	Populus deltoides			
750	10"	Cottonwood	Populus deltoides			
751	10"	Cottonwood	Populus deltoides			
752	8"	Cottonwood	Populus deltoides			
753	8"	Cottonwood	Populus deltoides			
754	10"	Cottonwood	Populus deltoides			
755	9"	Cottonwood	Populus deltoides			
756	10"	Cottonwood	Populus deltoides			
757	6"	Cottonwood	Populus deltoides			
758	8"	Cottonwood	Populus deltoides			
759	5"	Cottonwood	Populus deltoides			
760	10"	Cottonwood	Populus deltoides			
761	11"	Cottonwood	Populus deltoides			
762	7"	Cottonwood	Populus deltoides			

TAG#	DBH	COMMON NAME	GENUS/SPECIES	STEMS	% ALIVE	LM
763	14"	Cottonwood	Populus deltoides			
764	11"	Cottonwood	Populus deltoides			
765	6"	Hawthorn	Crataegus			
766	5"	Cottonwood	Populus deltoides			
767	5"	Hawthorn	Crataegus			
768	10"	American Elm	Ulmus americana			
769	5"	Black Cherry	Prunus serotina			
775	19"	Cottonwood	Populus deltoides			
785	8"	Red Oak	Quercus rubra			
786	7"	Red Oak	Quercus rubra			
787	5"	American Elm	Ulmus americana			
788	13"	Black Cherry	Prunus serotina	40%		
792	6"	Cottonwood	Populus deltoides			
793	5"	Cottonwood	Populus deltoides	40%		
794	7"	American Elm	Ulmus americana			
795	5"	American Elm	Ulmus americana			
796	17"	Silver Maple	Acer saccharinum			
797	7"	Cottonwood	Populus deltoides			
798	18"	Cottonwood	Populus deltoides			
799	7"	Cottonwood	Populus deltoides			
800	7"	Cottonwood	Populus deltoides			
801	7"	Cottonwood	Populus deltoides			
802	21"	Silver Maple	Acer saccharinum			
803	9"	Silver Maple	Acer saccharinum	tw		
804	13"	Cottonwood	Populus deltoides			
805	6"	Cottonwood	Populus deltoides			
806	17"	Cottonwood	Populus deltoides			
807	9"	Silver Maple	Acer saccharinum	quad		
808	17"	Cottonwood	Populus deltoides			
809	7"	Silver Maple	Acer saccharinum			
810	12"	Silver Maple	Acer saccharinum			
811	17"	Cottonwood	Populus deltoides			
812	5"	Silver Maple	Acer saccharinum	tw		
813	7"	Silver Maple	Acer saccharinum			
814	13"	Cottonwood	Populus deltoides			
815	15"	Cottonwood	Populus deltoides			
816	9"	Silver Maple	Acer saccharinum			
817	16"	Silver Maple	Acer saccharinum			
818	15"	Cottonwood	Populus deltoides			
819	13"	Cottonwood	Populus deltoides			
820	8"	Cottonwood	Populus deltoides			
821	11"	Siberian Elm	Ulmus pumila			
822	5"	Silver Maple	Acer saccharinum	tw		
823	12"	Cottonwood	Populus deltoides			
824	8"	Silver Maple	Acer saccharinum	tw		
825	7"	Cottonwood	Populus deltoides			
826	15"	Silver Maple	Acer saccharinum			
827	12"	Cottonwood	Populus deltoides			
828	13"	Cottonwood	Populus deltoides			
829	14"	Cottonwood	Populus deltoides			
830	8"	Cottonwood	Populus deltoides			
831	8"	Cottonwood	Populus deltoides			
832	7"	Cottonwood	Populus deltoides			
833	20"	Cottonwood	Populus deltoides			
834	9"	Cottonwood	Populus deltoides			
835	5"	Paper Birch	Betula papyrifera			
836	6"	Cottonwood	Populus deltoides			
837	7"	Cottonwood	Populus deltoides			
838	9"	Cottonwood	Populus deltoides			
839	7"	Cottonwood	Populus deltoides			
840	6"	Cottonwood	Populus deltoides			
841	6"	Cottonwood	Populus deltoides			
842	13"	Cottonwood	Populus deltoides			
843	7"	Cottonwood	Populus deltoides			
844	7"	Cottonwood	Populus deltoides			
845	5"	Cottonwood	Populus deltoides			
846	12"	Cottonwood	Populus deltoides			
847	10"	Cottonwood	Populus deltoides	tw		
848	15"	Cottonwood	Populus deltoides			
849	10"	Cottonwood	Populus deltoides			
849	10"	Cottonwood	Populus deltoides			
851	11"	Cottonwood	Populus deltoides			
852	7"	Cottonwood	Populus deltoides			
853	12"	Cottonwood	Populus deltoides			
854	9"	Cottonwood	Populus deltoides			
855	17"	Cottonwood	Populus deltoides	tw		
856	6"	Cottonwood	Populus deltoides			
857	12"	Cottonwood	Populus deltoides			
858	7"	Cottonwood	Populus deltoides			
859	12"	Cottonwood	Populus deltoides			
860	8"	Cottonwood	Populus deltoides			
861	6"	Cottonwood	Populus deltoides			
862	7"	Cottonwood	Populus deltoides			
863	5"	Cottonwood	Populus deltoides			
864	16"	Cottonwood	Populus deltoides			
865	7"	Cottonwood	Populus deltoides			
866	10"	Cottonwood	Populus deltoides			
867	10"	Cottonwood	Populus deltoides			
868	10"	Cottonwood	Populus deltoides			
869	8"	Cottonwood	Populus deltoides			

TAG#	DBH	COMMON NAME	GENUS/SPECIES	STEMS	% ALIVE	LM
870	15"	Cottonwood	Populus deltoides			
871	13"	Cottonwood	Populus deltoides			
872	2"	Cottonwood	Populus deltoides			
873	11"	Cottonwood	Populus deltoides			
874	11"	Cottonwood	Populus deltoides			
875	10"	Cottonwood	Populus deltoides			
876	7"	Cottonwood	Populus deltoides			
877	8"	Red Pine	Pinus resinosa			
878	10"	Cottonwood	Populus deltoides			
879	14"	Cottonwood	Populus deltoides			
880	5"	Cottonwood	Populus deltoides			
881	7"	Cottonwood	Populus deltoides			
882	5"	Cottonwood	Populus deltoides			
883	9"	Cottonwood	Populus deltoides			
884	6"	Cottonwood	Populus deltoides			
885	14"	Cottonwood	Populus deltoides			
886	5"	Cottonwood	Populus deltoides			
887	5"	Box Elder	Acer negundo			
888	7"	Sycamore	Hicoria occidentalis			
889	14"	Red Pine	Pinus resinosa			
890	7"	Cottonwood	Populus deltoides			
891	23"	Cottonwood	Populus deltoides			
892	14"	Cottonwood	Populus deltoides			
893	6"	Cottonwood	Populus deltoides			
894	5"	Cottonwood	Populus deltoides			
895	2"	Cottonwood	Populus deltoides			
896	7"	Cottonwood	Populus deltoides			
897	8"	Cottonwood	Populus deltoides			
898	6"	Cottonwood	Populus deltoides			
899	7"	Cottonwood	Populus deltoides			
900	11"	Cottonwood	Populus deltoides			
901	12"	Cottonwood	Populus deltoides			
902	12"	Cottonwood	Populus deltoides			
903	11"	Cottonwood	Populus deltoides			
904	11"	Cottonwood	Populus deltoides			
905	12"	Cottonwood	Populus deltoides			
906	14"	Cottonwood	Populus deltoides			
907	11"	Cottonwood	Populus deltoides			
908	15"	Cottonwood	Populus deltoides			
909	14"	Cottonwood	Populus deltoides			
910	14"	Cottonwood	Populus deltoides			
911	7"	Siberian Elm	Ulmus pumila			
912	5"	Silver Maple	Acer saccharinum	tw		
916	8"	Cottonwood	Populus deltoides			
917	5"	Cottonwood	Populus deltoides			
918	6"	Cottonwood	Populus deltoides			
919	6"	Cottonwood	Populus deltoides			
920	7"	Cottonwood	Populus deltoides			
921	11"	Cottonwood	Populus deltoides			
922	9"	Cottonwood	Populus deltoides			
923	10"	Cottonwood	Populus deltoides			
924	12"	Cottonwood	Populus deltoides			
925	6"	Cottonwood	Populus deltoides			
926	8"	Cottonwood	Populus deltoides			
927	9"	Cottonwood	Populus deltoides			
928	5"	American Elm	Ulmus americana			
929	11"	Cottonwood	Populus deltoides			
930	12"	Cottonwood	Populus deltoides			
931	13"	Cottonwood	Populus deltoides			
932	7"	Cottonwood	Populus deltoides			
933	7"	Cottonwood	Populus deltoides			
934	6"	Cottonwood	Populus deltoides			
935	14"	Cottonwood	Populus deltoides			
936	8"	Cottonwood	Populus deltoides			
937	7"	Cottonwood	Populus deltoides			
938	10"	Cottonwood	Populus deltoides			
939	11"	Cottonwood	Populus deltoides			
940	9"	Cottonwood	Populus deltoides			
941	9"	Cottonwood	Populus deltoides			
942	12"	Cottonwood	Populus deltoides			
943	7"	Cottonwood	Populus deltoides			
944	10"	Cottonwood	Populus deltoides			
945	13"	Cottonwood	Populus deltoides			
946	10"	Cottonwood	Populus deltoides			
947	5"	Cottonwood	Populus deltoides			
948	5"	Silver Maple	Acer saccharinum			
949	10"	Cottonwood	Populus deltoides			
950	15"	Cottonwood	Populus deltoides			
951	12"	Silver Maple	Acer saccharinum			
952	12"	Cottonwood	Populus deltoides			
953	9"	Cottonwood	Populus deltoides			
954	17"	Cottonwood	Populus deltoides			
955	10"	Cottonwood	Populus deltoides			
956	12"	Cottonwood	Populus deltoides			
957	9"	Cottonwood	Populus deltoides			
958	6"	Cottonwood	Populus deltoides			
959	9"	Cottonwood	Populus deltoides			
960	8"	Cottonwood	Populus deltoides			
961	9"	Cottonwood	Populus deltoides			



BOUNDARY LEGEND
 S2874'19"E (SPCS) STATE PLANE COORDINATE SYSTEM
 S04'28'18"E 1149.42' LEGAL OF RECORD

LEGEND

OU	EXISTING OVERHEAD WIRES
OP	EXISTING POLE AND GUY
OP	EXISTING POWER POLE
AMT	EXISTING AMERTECH RISER
OP	EXISTING LIGHT POLE
OP	EXISTING SIGNS
OP	EXISTING CONTOURS
OP	EXISTING CURB AND GUTTER
OP	EXISTING FENCE LINE
OP	EXISTING GAS LINE
OP	EXISTING STORM SEWER
OP	EXISTING STORM STRUCTURES
OP	EXISTING SANITARY SEWER
OP	EXISTING SANITARY MANHOLE
OP	EXISTING SANITARY CLEANOUT
OP	PROPOSED STORM SEWER
OP	PROPOSED STORM STRUCTURES
OP	PROPOSED WATER MAIN STRUCTURES
OP	PROPOSED CONTOURS
OP	PROPOSED CURB & GUTTER
OP	PROPOSED BITUMINOUS PAVEMENT PER DETAIL, SHEET D11
OP	PROPOSED CONCRETE PAVEMENT PER DETAIL, SHEET D11
OP	PROPOSED BITUMINOUS PAVEMENT EXISTING GRAVEL BASE TO REMAIN
OP	100 YEAR OVERFLOW ROUTE

SITE DATA:

PROJECT AREA: 27.93 ac.
 CURRENT ZONING: M-2 GENERAL INDUSTRIAL
 USE STATEMENT: ENGINEERING, DESIGN, FABRICATION AND HEAT TREATMENT OF ALUMINUM COMPONENTS PRIMARILY FOR THE AUTOMOTIVE INDUSTRY.

	PROPOSED	REQUIRED
BUILDING HEIGHT:	40 FEET	40 FEET (MAX.)
LOT COVERAGE:	32.4%	35% (MAX.)
SETBACKS:	FRONT 187.6'	60 FT.
	SIDE 59.5'	50 FT.
	REAR 50.0'	50 FT.

GROSS FLOOR AREA: EXISTING BUILDING 323,035 SF.
 PROPOSED BUILDING 50,551 SF.
 ACCESSORY STRUCTURE 20,000 SF.

PERCENT LOT COVERAGE (STRUCTURES): 32.4%
 IMPERVIOUS AREA: 673,652 SQ. FT. = 55.4%

PARKING REQUIREMENTS:
 PROPOSED MANUFACTURING 343,607 SF.
 PROPOSED OFFICE 29,979 SF.

PARKING REQUIRED BY ORDINANCE:
 5 SPACES 5
 1/550 SQ.FT. GROSS FLOOR AREA 625
 1/EMPLOYEE 120
 1/350 SQ.FT. UFA (OFFICE) 86

TOTAL PARKING REQ'D. = 836 SPACES
NECESSARY PARKING:
 1 SPACE PER EMPLOYEE (PEAK SHIFT)

OFFICE	86
MANUFACTURING	100 (PEAK SHIFT)
SHIFT CHANGE	100
GUESTS	5

TOTAL PARKING REQ'D. = 291 SPACES
 PROVIDED STANDARD PARKING: = 306 SPACES
 BARRIER FREE PARKING = 14 SPACES

LOADING CALCULATIONS:
 3 SPACES + 1 PER EVERY 50,000 S.F. OVER 50,000 S.F.
 LOADING SPACES REQUIRED: 9 SPACES
 LOADING SPACES PROVIDED: 9 SPACES

- NOTES:
- BUILDING ADDITION ELEVATIONS WILL MATCH THE EXISTING BUILDING MATERIALS AND COLORS.
 - ACCESSORY STRUCTURE IS A TRUSS SUPPORTED, FABRIC ENCLOSURE.
 - SANITARY SERVICE WITHIN THE PROPOSED ADDITION WILL BE PROVIDED BY INTERNAL BUILDING PLUMBING. NO NEW SANITARY SEWER LEAD IS PROPOSED.
 - DOMESTIC WATER SERVICE WITHIN THE PROPOSED ADDITION WILL BE PROVIDED BY INTERNAL BUILDING PLUMBING. NO NEW DOMESTIC WATER LEAD IS PROPOSED.
 - FIRE SUPPRESSION WITHIN THE PROPOSED ADDITION WILL BE CONNECTED TO THE EXISTING FIRE RISER SYSTEM. NO NEW FIRE SUPPRESSION LEAD IS PROPOSED.
 - THERE WILL BE NO OUTDOOR STORAGE OF MATERIALS ON THE PROPERTY.
 - PARKING LOT STRIPING AND MARKINGS SHALL BE MAINTAINED IN A CLEARLY VISIBLE CONDITION.
 - PAVED SURFACES, WALKWAYS, SIGNS, LIGHTING AND OTHER STRUCTURES SHALL BE MAINTAINED IN A SAFE, ATTRACTIVE CONDITION AS ORIGINALLY DESIGNED AND CONSTRUCTED.
 - THE PROPERTY OWNER SHALL TREAT THE DETENTION BASIN FOR MOSQUITO CONTROL DURING THE MOSQUITO SEASON WITH MOSQUITO DUNKS AS PRODUCED BY SUMMIT CHEMICAL, INC. OR APPROVED EQUAL, IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
 - NO NEW SIGNAGE IS PROPOSED.
 - NO TOXIC WASTE WILL BE GENERATED FROM THIS SITE.
 - NO UNDERGROUND STORAGE TANKS ARE PROPOSED ON THIS SITE.
 - CONTRACTOR SHALL PICK UP DEBRIS WITHIN THE CONSTRUCTION LIMITS WEEKLY, OR AS NEEDED, DURING CONSTRUCTION.
 - PROJECT WILL BE CONSTRUCTED IN ONE PHASE.

811
 Know what's Below.
 Call before you dig.
 3 WORKING DAYS BEFORE YOU DIG
 CALL 811 OR 1-800-482-7171 (TOLL FREE)
 OR VISIT CALL811.COM

DESIGN INC.
 (810) 227-9533
 CIVIL ENGINEERS
 LAND SURVEYORS
 2183 PLESS DRIVE
 BRIGHTON, MICHIGAN 48114

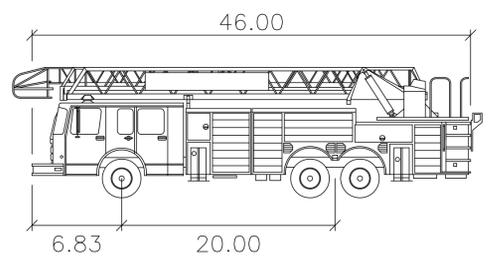
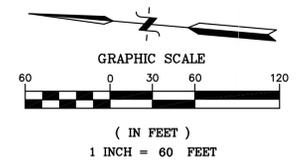
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DRAFT: L.F.	03-01-18	REVISE PER WCDPS REVIEW				
CHECK: WMP	04-11-18	REVISE PER REVIEW COMMENTS				



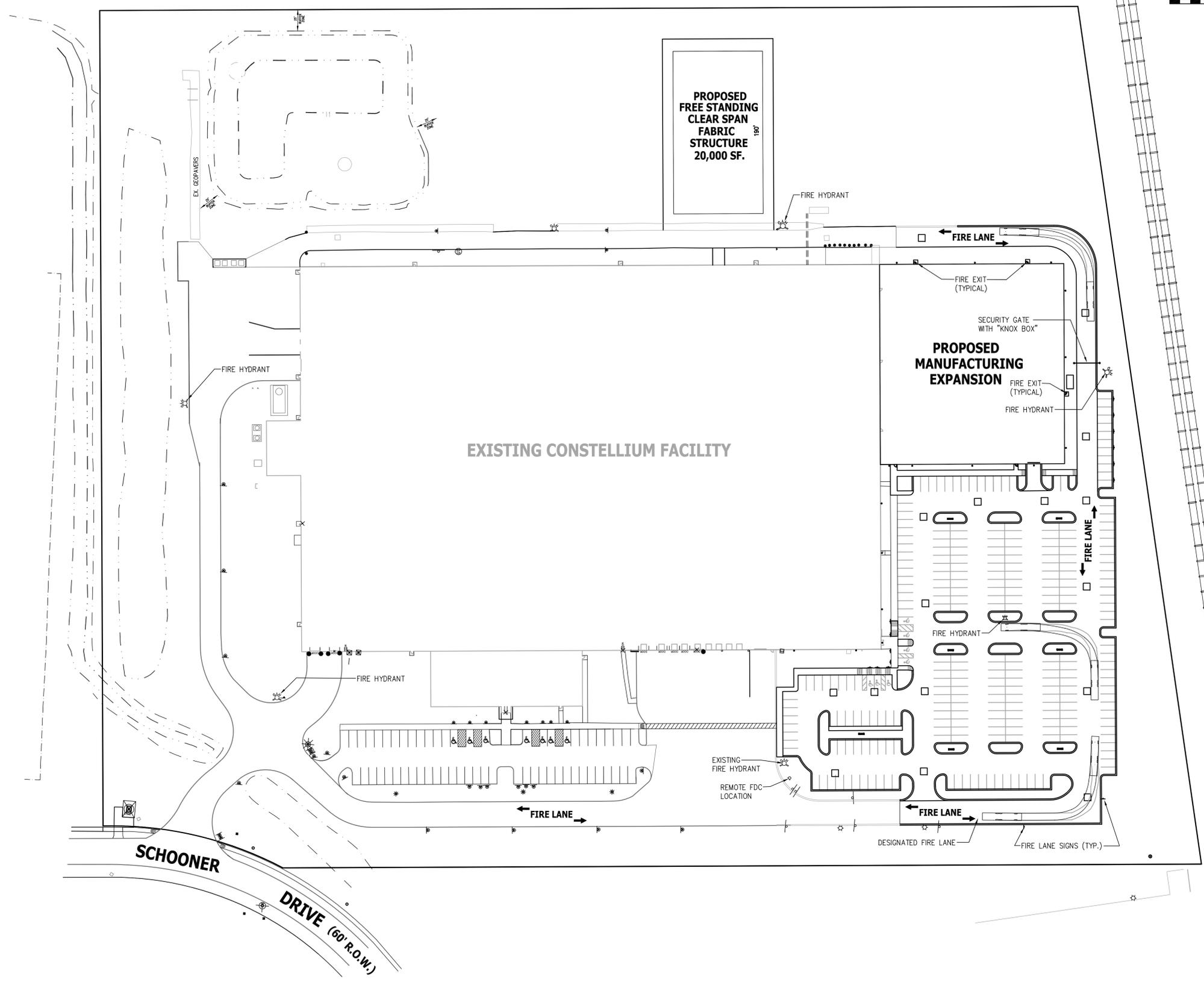
SITE PLAN

CLIENT: CONSTELLUM
 6331 SCHOONER DRIVE
 VAN BUREN TWP, MI. 48111
 SCALE: 1"=60'
 PROJECT No.: 9173300
 DWG NAME: 3300-SITE
 ISSUED: APRIL 11, 2018

SP



46—AERIAL FIRE feet
 Width : 8.50
 Track : 8.25
 Lock to Lock Time : 6.00
 Steering Angle : 37.60



SCHOONER DRIVE (60' R.O.W.)

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DESIGN INC
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DESIGN: WMP	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: L.F.		04-11-18	REVISED PER REVIEW COMMENTS			
CHECK: WMP						



SAFETY PLAN

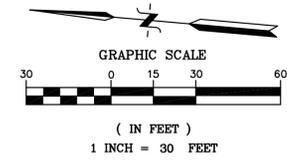
CLIENT: CONSTELLIUM
 6331 SCHOONER DRIVE
 VAN BUREN TOWNSHIP, MI 48111

SCALE: 1"=60'
 PROJECT No.: 9173300
 DWG NAME: 3300-SAFE
 ISSUED: **APRIL 11, 2018**

SF

MATCH LINE - SEE SHEET GR2

PROPOSED MANUFACTURING EXPANSION
50,551 SF.
F.F. - 696.36



LEGEND

- OU—OU— EXISTING OVERHEAD WIRES
- P—P— EXISTING POWER POLE
- AMT— EXISTING AMERITECH RISER
- L—L— EXISTING LIGHT POLE
- S—S— EXISTING SIGNS
- 970— EXISTING CONTOURS
- X—X— EXISTING CURB AND GUTTER
- F—F— EXISTING FENCE LINE
- GAS—GAS— EXISTING GAS LINE
- ST—ST— EXISTING STORM SEWER
- SA—SA— EXISTING STORM STRUCTURES
- SA—SA— EXISTING SANITARY SEWER
- SA—SA— EXISTING SANITARY MANHOLE
- SA—SA— EXISTING SANITARY CLEANOUT
- ST—ST— EXISTING SPOT ELEVATION
- ST—ST— PROPOSED STORM SEWER
- W—W— PROPOSED STORM STRUCTURES
- W—W— PROPOSED WATER MAIN
- W—W— PROPOSED WATER MAIN STRUCTURES
- 696— PROPOSED CONTOURS
- 696— PROPOSED CURB & GUTTER
- 696— PROPOSED BITUMINOUS PAVEMENT PER DETAIL SHEET DT1
- 696— PROPOSED CONCRETE PAVEMENT PER DETAIL SHEET DT1
- 696— PROPOSED BITUMINOUS PAVEMENT EXISTING GRAVEL BASE TO REMAIN
- 696— TOP OF CURB 1000.00 T/C
- 696— EDGE OF METAL 1000.00 E/M
- 696— TOP OF WALK 1000.00 T/WALK
- 696— PROPOSED SPOT ELEVATION
- 696— PROPOSED FLOW ARROW

PAVEMENT QUANTITIES (THIS SHEET)

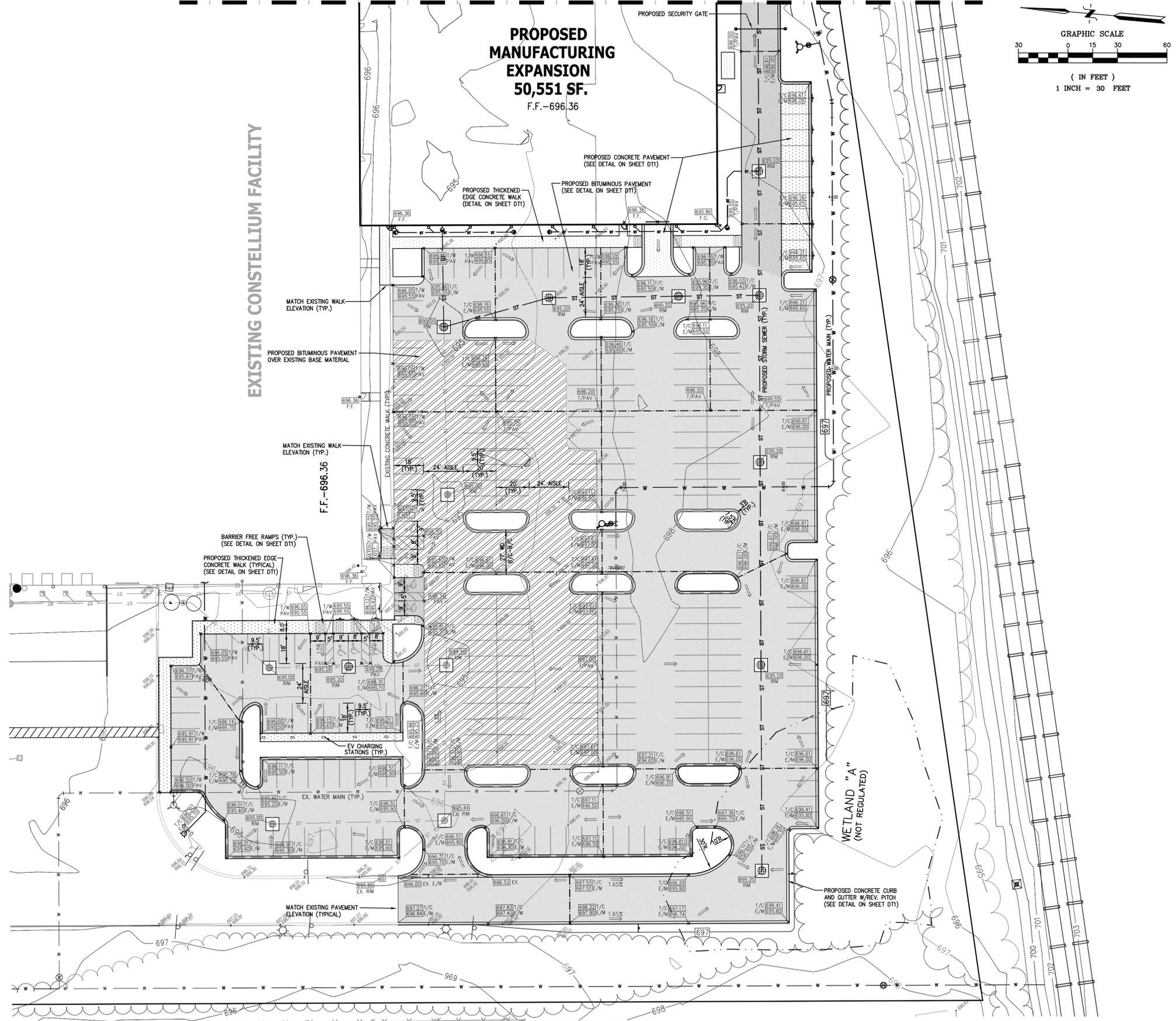
Item	Pavement Construction	Quantity	Unit
1	Bituminous Pavement	108,629	SF.
2	Concrete Pavement	2,458	SF.
3	Concrete Walk	4,114	SF.
4	Concrete Curb	2,821	L.F.

BENCHMARK
DATUM BASED ON PREVIOUS BENCHMARK AS DEPICTED ON SITE PLANS PREPARED BY GHAFARI ASSOC., LLC.
PROJECT No. 137403.001,
REVISED DATE: AUGUST 8, 2014.

BM#211
REFERENCE AS DEPICTED ON ABOVE.
TOP OF WALL AT NORTHWEST CORNER OF #6331 WEST WALL.
ELEVATION = 696.39 (NGVD 29)
REF: POINT #211

BM#212
ARROW ON HYDRANT, LOCATED 175± FEET NORTHWEST OF THE SOUTHWEST BLDG CORNER (#6331).
ELEVATION = 698.08 (NGVD 29)

BM#215
ARROW ON HYDRANT, LOCATED NEAR THE MID-POINT OF EAST BLDG WALL (#6331).
ELEVATION = 698.09 (NGVD 29)



DESIGN: WMP	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: L.F.	04-11-18		REVISED PER REVIEW COMMENTS
CHECK: WMP			

REVISION #	DATE	REVISION-DESCRIPTION

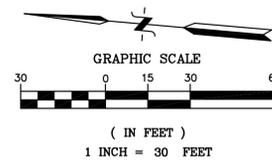
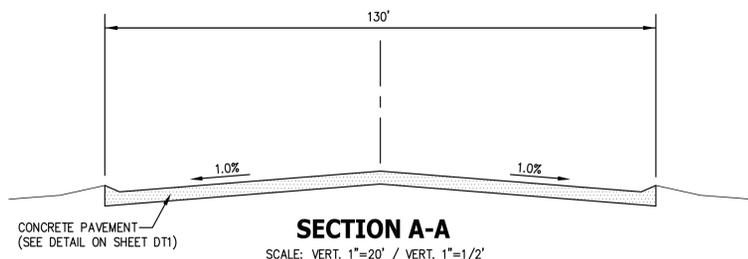
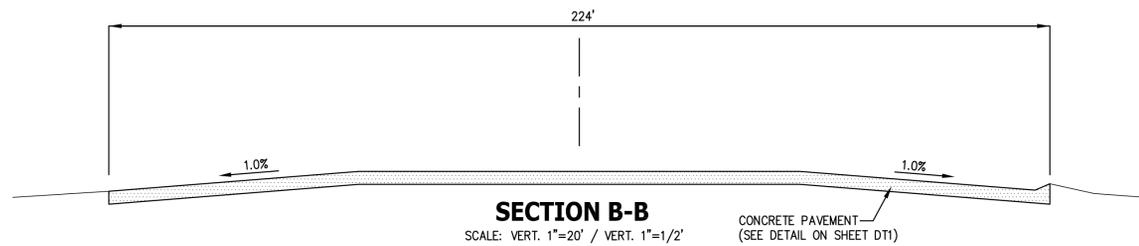
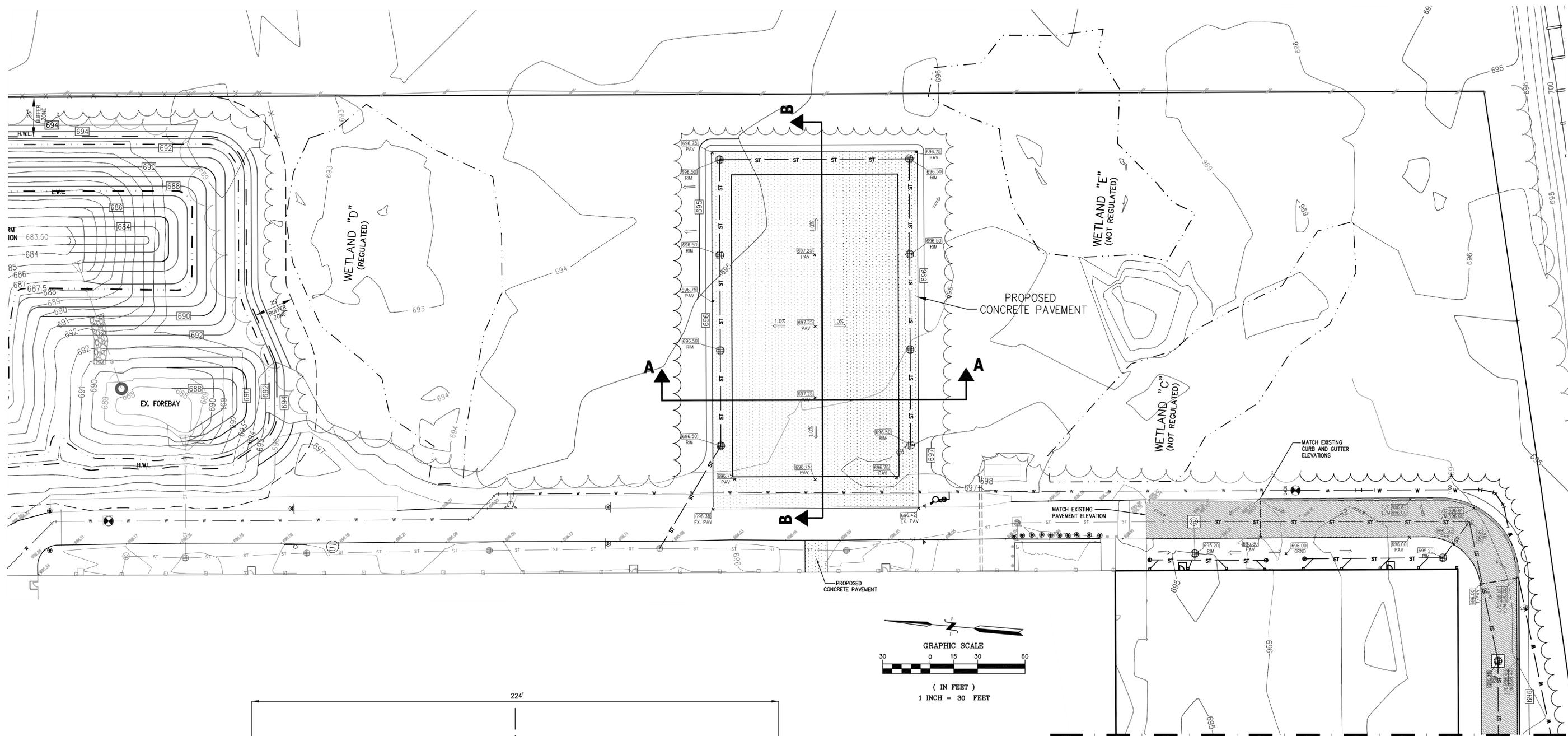


GRADING AND PAVING PLAN

CLIENT: CONSTELLIUM
6331 SCHOONER DRIVE
VAN BUREN TWP, MI. 48111

SCALE: 1"=30'
PROJECT No.: 9173300
DWG NAME: 3300-GR
ISSUED: APRIL 11, 2018

GR1



MATCH LINE - SEE SHEET GR2

BENCHMARK
DATUM BASED ON PREVIOUS BENCHMARK AS DEPICTED ON SITE PLANS PREPARED BY GHAFARI ASSOC., LLC.
PROJECT No. 137403.001
REVISED DATE: AUGUST 8, 2014.

BM#211
REFERENCE AS DEPICTED ON ABOVE. TOP OF WALL AT NORTHWEST CORNER OF #6331 WEST WALL.
ELEVATION = 696.39 (NGVD 29)
REF: POINT #211

BM#212
ARROW ON HYDRANT, LOCATED 175± FEET NORTHWEST OF THE SOUTHWEST BLDG CORNER (#6331).
ELEVATION = 698.08 (NGVD 29)

BM#215
ARROW ON HYDRANT, LOCATED NEAR THE MID-POINT OF EAST BLDG WALL (#6331).
ELEVATION = 698.09 (NGVD 29)

PAVEMENT QUANTITIES (THIS SHEET)

Item	Pavement Construction	Quantity	Unit
1	Bituminous Pavement	7,955	SF.
2	Concrete Pavement	29,088	SF.
3	Concrete Walk	0	SF.
4	Concrete Curb	290	L.F.



3 WORKING DAYS BEFORE YOU DIG
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OR VISIT CALL811.COM



DESIGN: WMP	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: L.F.						
CHECK: WMP	003401188		REVISOR PERFORMED MEASUREMENTS			



GRADING AND PAVING PLAN

CLIENT: CONSTELLUM
6331 SCHOONER DRIVE
VAN BUREN TOWNSHIP, MI. 48111

SCALE: 1"=30'
PROJECT No.: 9173300
DWG NAME: 3300-GR
ISSUED: APRIL 11, 2018

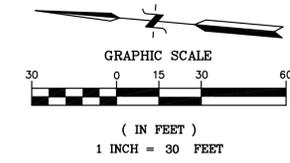
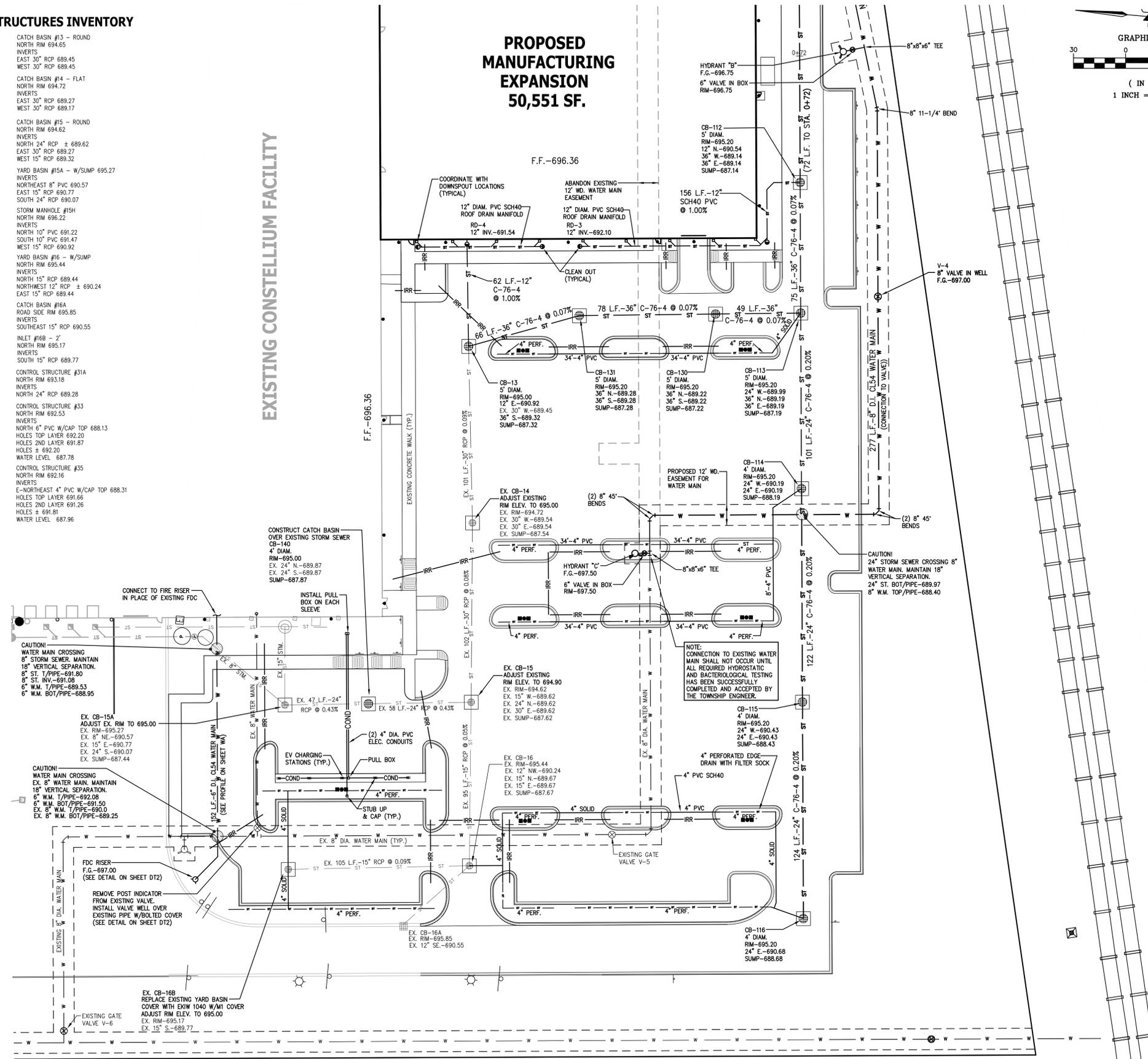
GR2

EXISTING UTILITY STRUCTURES INVENTORY

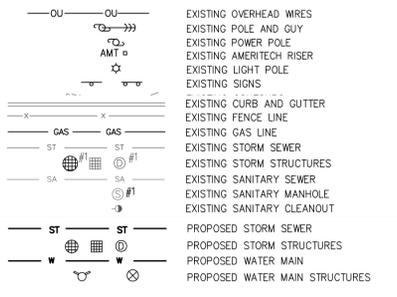
STORM MANHOLE #2 NORTH RIM 695.92 INVERTS NORTH 12" RCP 691.07 EAST 36" RCP 688.12 SOUTH 36" RCP 688.12	CATCH BASIN #13 - ROUND NORTH RIM 694.65 INVERTS EAST 30" RCP 689.45 WEST 30" RCP 689.45
YARD BASIN #2A - W/SUMP NORTH RIM 695.39 INVERTS SOUTH 12" RCP 691.18 WEST 12" PVC 691.29	CATCH BASIN #14 - FLAT NORTH RIM 694.72 INVERTS EAST 30" RCP 689.27 WEST 30" RCP 689.17
YARD BASIN #3 - W/SUMP NORTH RIM 695.42 INVERTS NORTH 36" RCP 688.12 SOUTH 36" RCP 688.12	CATCH BASIN #15 - ROUND NORTH RIM 694.62 INVERTS NORTH 24" RCP ± 689.62 EAST 30" RCP 689.27 WEST 15" RCP 689.32
YARD BASIN #4 - W/SUMP NORTH RIM 695.58 INVERTS NORTH 36" RCP 688.16 SOUTH 36" RCP 688.16	YARD BASIN #15A - W/SUMP 695.27 INVERTS NORTHEAST 8" PVC 690.57 EAST 15" RCP 690.77 SOUTH 24" RCP 690.07
YARD BASIN #5 - W/SUMP NORTH RIM 695.58 INVERTS NORTH 36" RCP 688.23 SOUTH 36" RCP 688.23	STORM MANHOLE #15H NORTH RIM 696.22 INVERTS NORTH 10" PVC 691.22 SOUTH 10" PVC 691.47
YARD BASIN #6 - W/SUMP NORTH RIM 695.45 INVERTS NORTH 36" RCP 688.65 SOUTH 36" RCP 688.65	YARD BASIN #16 - W/SUMP NORTH RIM 695.44 INVERTS NORTH 15" RCP 689.44 NORTHWEST 12" RCP ± 690.24 EAST 15" RCP 689.44
STORM MANHOLE #8 NORTH RIM 696.00 INVERTS NORTH 36" RCP 688.85 SOUTH 36" RCP 688.85	CATCH BASIN #16A ROAD SIDE RIM 695.85 INVERTS SOUTHEAST 15" RCP 690.55
STORM MANHOLE #9 NORTH RIM 695.39 INVERTS WEST 30" RCP 688.95 NORTH 36" RCP 688.85	INLET #16B - 2' NORTH RIM 695.17 INVERTS SOUTH 15" RCP 689.77
CATCH BASIN #10 - FLAT NORTH RIM 694.64 INVERTS EAST 30" RCP 689.09 WEST 30" RCP 689.04	CONTROL STRUCTURE #31A NORTH RIM 693.18 INVERTS NORTH 24" RCP 689.28
CATCH BASIN #11 - FLAT NORTH RIM 694.72 INVERTS EAST 30" RCP 689.02 WEST 30" RCP 689.07	CONTROL STRUCTURE #33 NORTH RIM 692.53 INVERTS NORTH 6" PVC W/CAP TOP 688.13 HOLES TOP LAYER 692.20 HOLES 2ND LAYER 691.87
CATCH BASIN #12 - ROUND NORTH RIM 694.68 INVERTS EAST 30" RCP 689.13 WEST 30" RCP 689.23	CONTROL STRUCTURE #35 NORTH RIM 692.16 INVERTS E-NORTHEAST 4" PVC W/CAP TOP 688.31 HOLES TOP LAYER 691.66 HOLES 2ND LAYER 691.26 HOLES ± 691.81 WATER LEVEL 687.96

EXISTING CONSTELLIUM FACILITY

**PROPOSED MANUFACTURING EXPANSION
50,551 SF.**



LEGEND



CASTING SCHEDULE

STORM MANHOLE	EJW 1040
CATCHBASIN (CURB)	EJW 5080
CATCHBASIN (PAVEMENT)	EJW 1040; MI COVER
YARD BASIN	EJW 1000; N COVER
GATE WELL	EJW 1000; A COVER

WATER MAIN QUANTITIES (THIS SHEET)

Item	Water Main Construction	Quantity	Unit
1	8" CL54 D.I. Water main	421	L.F.
2	6" CL54 D.I. Water main	190	L.F.
3	8" Gate valve in well	1	Each
4	6" Gate valve in well	2	Each
5	Hydrants	2	Each
6	8"X8"X6" Tee	2	Each
7	8" 45 Degree Bend	5	Each
8	8" 22 1/2 Degree Bend	1	Each
9	8" 11 1/4 Degree Bend	2	Each
10	6" 90 Degree Bend	0	Each
11	8" Valve well	1	Each
12	Remote FDC	1	Each

STORM SEWER QUANTITIES (THIS SHEET)

Item	Storm Sewer Construction	Quantity	Unit
1	4" Diam. Catch Basin	4	EA.
2	5" Diam. Catch Basin	4	EA.
3	4" Diam. Yard Basin	0	EA.
4	12" SCH40 PVC	156	L.F.
5	12" 76-4 RCP	62	L.F.
6	24" 76-4 RCP	347	L.F.
7	36" 76-4 RCP	340	L.F.

SANITARY BASIS OF DESIGN

CONSTELLIUM
 Use: Research/Manufacturing/Warehouse
 Use Area *Flow Rate
 Office 28,035 sq.ft. 0.25 REU/1,000 sq.ft. = 7.01 REU
 Factory 323,197 sq.ft. 0.75 REU/1,000 sq.ft. = 242.40 REU
 Warehouse 22,354 sq.ft. 0.15 REU/1,000 sq.ft. = 3.35 REU
 Building Area: 373,586 sq.ft. Total REU's = 252.76 REU
 Design service area in acres: Initial 27.93 Ultimate 27.93
 Design population densities per acre: Initial 10.74 Ultimate 10.74
 Total Residential Equivalent Units (REU): 252.8
 Design Contribution per REU: 350 GPD = 0.00054 cfs
 **Design flow: Initial 88,480 GPD = 0.1369 cfs
 Ultimate 88,480 GPD = 0.1369 cfs
 Wastewater flow rates for proposed project
 **Initial design average flow 88,480 GPD = 0.1369 cfs
 Initial design peak flow 15,034 GPH = 0.5583 cfs
 **Ultimate design average flow 88,480 GPD = 0.1369 cfs
 Ultimate design maximum flow (peak hour) 15,034 GPH = 0.5583 cfs
 Capacity of the Existing 6" Dia. sanitary lead @ 1.00% slope = 0.56 cfs
 * Flow rate per Van Buren Township Water and Sewer Department Schedule of Rates
 **Based on 350 GPD per REU

BENCHMARK
 DATUM BASED ON PREVIOUS BENCHMARK AS
 DEPICTED ON SITE PLANS PREPARED BY
 GHAFARI ASSOC., LLC,
 PROJECT No. 137403.001,
 REVISED DATE: AUGUST 8, 2014.

BM#211
 REFERENCE AS DEPICTED ON ABOVE.
 TOP OF WALL AT NORTHWEST CORNER OF
 #6331 WEST WALL.
 ELEVATION = 698.39 (NGVD 29)
 REF: POINT #211

BM#212
 ARROW ON HYDRANT, LOCATED 175± FEET
 NORTHWEST OF THE SOUTHWEST BLDG CORNER
 (#6331).
 ELEVATION = 698.08 (NGVD 29)

BM#215
 ARROW ON HYDRANT, LOCATED NEAR THE
 MID-POINT OF EAST BLDG WALL (#6331).
 ELEVATION = 698.09 (NGVD 29)

REVISION #	DATE	REVISION-DESCRIPTION
DESIGN: WMP	04-11-18	REVISE PER REVIEW COMMENTS
DRAFT: L.F.		
CHECK: WMP		



UTILITY PLAN

CLIENT: CONSTELLIUM	SCALE: 1"=30'
6331 SCHOONER DRIVE VAN BUREN TWSP, MI. 48111	PROJECT No.: 9173300
	DWG NAME: 3300-UT
	ISSUED: APRIL 11, 2018

UT1

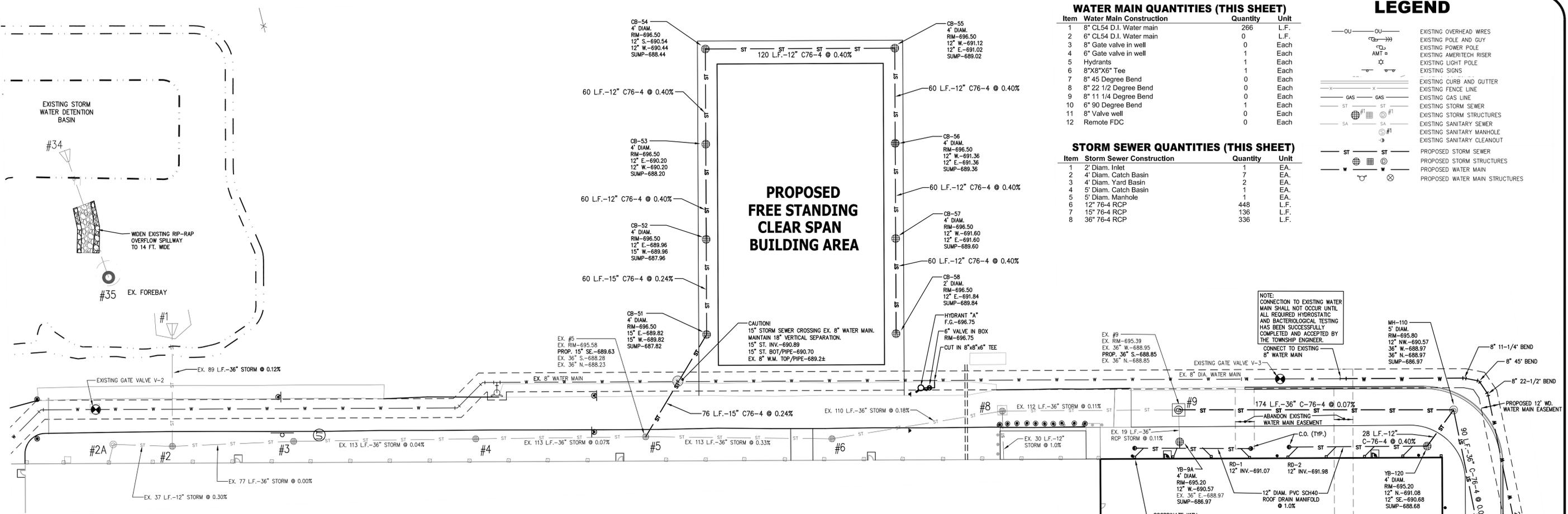
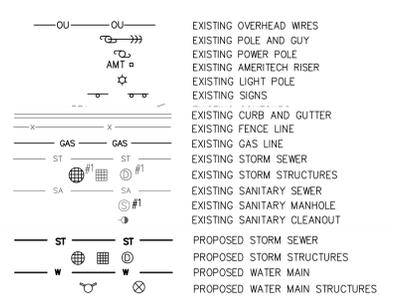
WATER MAIN QUANTITIES (THIS SHEET)

Item	Water Main Construction	Quantity	Unit
1	8" CL54 D.I. Water main	266	L.F.
2	6" CL54 D.I. Water main	0	L.F.
3	8" Gate valve in well	0	Each
4	6" Gate valve in well	1	Each
5	Hydrants	1	Each
6	8"x8"x6" Tee	1	Each
7	8" 45 Degree Bend	0	Each
8	8" 22 1/2 Degree Bend	0	Each
9	8" 11 1/4 Degree Bend	0	Each
10	6" 90 Degree Bend	1	Each
11	8" Valve well	0	Each
12	Remote FDC	0	Each

STORM SEWER QUANTITIES (THIS SHEET)

Item	Storm Sewer Construction	Quantity	Unit
1	2' Diam. Inlet	1	EA.
2	4' Diam. Catch Basin	7	EA.
3	4' Diam. Yard Basin	1	EA.
4	5' Diam. Catch Basin	1	EA.
5	5' Diam. Manhole	448	L.F.
6	12" 76-4 RCP	136	L.F.
7	15" 76-4 RCP	136	L.F.
8	36" 76-4 RCP	336	L.F.

LEGEND



CONSTITUTION

Design Criteria: 10 yr event (I = 151.81 + 19.9)

From MH#	To MH#	Inc. Acres	Eqv. Area 100% CA	Total Area 100% CA	Total T	Q (CIA)	Dia. of pipe inch	Slope pipe %	Slope H.G. %	Length of line ft.	Vol. Flow full ft./sec.	Time of flow min.	Cap. of pipe c.f.s.	H.G. Elev. upper end	H.G. Elev. lower end	Rim / Ground Elev. Upper Rim	Rim / Ground Elev. Lower Rim	Invert Elev. Upper end	Invert Elev. Lower end	UPPER RIM-HGL		
16A	16	0.19	1.03	0.20	0.20	15.0	4.35	0.85	12	0.62	0.06	50	3.57	0.2	2.81	693.06	693.03	695.85	695.44	690.55	690.24	2.79
16B	16	0.28	0.71	0.20	0.20	15.0	4.35	0.86	15	0.09	0.02	105	1.58	1.1	1.94	693.05	693.00	695.00	695.44	689.77	689.67	1.95
16	15	0.16	0.83	0.13	0.53	16.1	4.22	2.22	15	0.05	0.12	95	1.81	0.9	1.44	693.03	692.92	695.44	694.90	689.67	689.62	2.41
15B	15C (pump)	0.85	0.95	0.81	0.81	15.0	4.35	3.51	12	1.00	0.97	96	4.54	0.4	3.56	699.80	698.87	696.00	688.40	687.44	-6.94	
15C (pump)	15A	0.00	0.00	0.00	0.81	15.4	4.31	3.48	8	1.00	8.28	70	9.96	0.1	1.21	698.87	693.07	696.00	695.00	691.27	690.57	-2.87
15H	15A	1.07	0.95	1.02	1.02	15.0	4.35	4.42	15	0.80	0.47	45	4.71	0.2	5.78	693.28	693.07	696.20	695.00	691.13	690.77	2.92
15A	140	0.16	0.94	0.15	1.98	15.5	4.29	8.48	24	0.43	0.14	47	4.72	0.2	14.82	693.07	693.00	695.00	690.07	689.87	1.93	
140	15	0.12	0.79	0.09	2.07	15.6	4.27	8.84	24	0.43	0.15	58	4.72	0.2	14.82	693.00	692.92	695.00	694.90	689.87	689.62	2.00
15	14	0.34	0.89	0.30	2.90	17.0	4.12	11.94	30	0.08	0.08	102	2.43	0.7	11.46	692.92	692.73	694.90	695.00	689.62	689.54	1.98
14	13	0.32	0.89	0.28	3.18	17.7	4.04	12.86	30	0.09	0.10	101	2.62	0.6	12.30	692.83	692.73	695.00	695.00	689.54	689.45	2.17
RD-4	13	0.29	0.95	0.28	0.28	15.0	4.35	1.20	12	1.00	0.11	62	4.54	0.2	3.56	692.80	692.73	696.20	695.00	691.54	690.92	3.40
13	131	0.21	0.83	0.17	3.63	18.3	3.97	14.43	36	0.07	0.05	66	2.50	0.4	17.65	692.73	692.70	695.00	695.20	689.32	689.28	2.27
131	130	0.17	0.87	0.15	3.78	18.8	3.93	14.85	36	0.07	0.05	78	2.50	0.5	17.65	692.70	692.66	695.20	695.20	689.28	689.22	2.50
130	113	0.17	0.87	0.15	3.93	19.3	3.87	15.23	36	0.07	0.05	49	2.50	0.3	17.65	692.66	692.63	695.20	695.20	689.22	689.19	2.54
116	115	0.28	0.81	0.23	0.23	15.0	4.35	0.99	24	0.20	0.00	124	3.22	0.6	10.12	692.67	692.67	695.20	695.20	690.68	690.43	2.53
115	114	0.37	0.91	0.34	0.57	15.6	4.27	2.42	24	0.20	0.01	122	3.22	0.6	10.12	692.66	692.66	695.20	695.20	690.43	690.19	2.53
114	113	0.29	0.91	0.26	0.83	16.3	4.20	3.47	24	0.20	0.02	101	3.22	0.5	10.12	692.66	692.63	695.20	695.20	690.19	689.99	2.54
113	112	0.17	0.84	0.14	4.90	19.6	3.84	18.83	36	0.07	0.08	75	2.66	0.5	17.65	692.63	692.58	695.20	695.20	689.19	689.14	2.57
RD-3	112	0.29	0.95	0.28	0.28	15.0	4.35	1.20	12	1.00	0.11	156	4.54	0.6	3.56	692.75	692.58	695.20	695.20	692.10	690.54	3.11
112	111	0.14	0.76	0.11	5.28	20.1	3.80	20.06	36	0.07	0.09	144	2.84	0.8	17.65	692.58	692.44	695.20	695.20	689.14	689.03	2.62
111	110	0.11	0.65	0.07	5.36	20.9	3.72	19.91	36	0.07	0.09	90	2.82	0.5	17.65	692.44	692.36	695.20	695.20	689.03	688.97	2.76
RD-2	120	0.29	0.95	0.28	0.28	15.0	4.35	1.20	12	1.00	0.11	90	4.54	0.3	3.56	692.52	692.42	696.00	695.20	691.98	691.08	3.48
120	110	0.11	0.71	0.08	0.35	15.3	4.31	1.53	12	0.40	0.18	28	2.87	0.2	2.25	692.42	692.36	695.20	695.20	690.68	690.57	2.78
110	9	0.00	0.00	0.00	5.71	21.5	3.67	20.95	36	0.07	0.10	174	2.96	1.0	17.65	692.36	692.19	695.20	695.39	688.97	688.85	2.84
RD-1	9A	0.29	0.95	0.28	0.28	15.0	4.35	1.20	12	1.00	0.11	50	4.54	0.2	3.56	692.25	692.19	696.00	695.20	691.07	690.57	3.75
9A	9	0.15	0.65	0.10	0.37	15.2	4.33	1.61	36	0.11	0.00	19	3.07	0.1	21.71	692.19	692.19	695.20	695.39	688.97	688.95	3.01
9	8	0.00	0.00	0.00	6.08	22.4	3.59	21.80	36	0.00	0.11	112	3.08	0.6	0.00	692.19	692.07	695.39	696.00	688.85	688.85	3.20
RD-8	8	0.54	0.91	0.49	0.49	15.0	4.35	2.15	12	1.00	0.36	30	4.54	0.1	3.56	692.42	692.31	695.50	696.00	691.61	691.31	3.08
8	6	0.00	0.00	0.00	6.58	23.0	3.53	23.24	36	0.18	0.12	110	4.03	0.5	28.45	692.07	691.94	696.00	695.45	688.85	688.65	3.93
6	5	0.49	0.91	0.45	7.02	23.5	3.50	24.56	36	0.33	0.14	113	5.40	0.3	38.14	691.94	691.79	695.45	695.58	688.65	688.28	3.51
58	57	0.10	0.95	0.10	0.10	15.0	4.35	0.41	12	0.40	0.01	60	2.87	0.3	2.25	693.76	693.76	696.50	696.50	693.00	692.76	2.74
57	26	0.09	0.95	0.09	0.18	15.3	4.31	0.78	12	0.40	0.05	60	2.87	0.3	2.25	693.54	693.52	696.50	696.50	692.76	692.52	2.96
56	55	0.09	0.95	0.09	0.27	15.7	4.28	1.13	12	0.40	0.10	60	2.87	0.3	2.25	693.34	693.28	696.50	696.50	692.52	692.28	3.16
55	54	0.05	0.95	0.05	0.31	16.0	4.22	1.32	12	0.40	0.14	120	2.87	0.7	2.25	692.86	692.70	696.50	696.50	692.18	691.70	3.64
54	53	0.05	0.95	0.05	0.36	16.7	4.14	1.50	12	0.40	0.18	60	2.87	0.3	2.25	692.55	692.45	696.50	696.50	691.60	691.36	3.95
53	52	0.09	0.95	0.09	0.45	17.1	4.10	1.83	12	0.40	0.26	60	2.87	0.3	2.25	692.45	692.29	696.50	696.50	691.36	691.12	4.05
52	51	0.09	0.95	0.09	0.53	17.4	4.07	2.16	15	0.24	0.11	60	2.98	0.4	3.16	692.29	692.22	696.50	696.50	691.12	690.97	4.21
51	5	0.10	0.95	0.10	0.63	17.8	4.02	2.52	15	0.24	0.15	76	2.98	0.5	3.16	692.16	692.04	696.50	696.50	690.97	690.79	4.34
5	4	0.50	0.89	0.44	8.09	23.8	3.47	28.07	36	0.07	0.18	113	3.97	0.5	17.00	691.79	691.59	695.58	695.41	688.23	688.16	3.79
4	3	0.49	0.88	0.43	8.52	24.3	3.43	29.26	36	0.04	0.19	113	4.14	0.5	12.48	691.59	691.37	695.41	695.42	688.16	688.12	3.82
3	2	0.40	0.89	0.35	8.86	24.8	3.40	30.16	36	0.00	0.20	77	4.27	0.3	0.00	691.37	691.21	695.42	695.92	688.12	688.12	4.05
2A	2	0.59	0.88	0.52	0.52	15.0	4.35	2.27	12	0.30	0.41	37	2.89	0.2	1.95	692.22	692.07	695.39	695.92	691.18	691.07	3.17
2	1	0.00	0.00	0.00	9.40	25.1	3.37	31.72	36	0.12	0.23	89	4.49	0.3	23.10	691.21	691.01	695.92	688.01	688.12	688.01	4.71

DESIGN: WMP REVISION # DATE REVISION-DESCRIPTION

03-01-18 REVISE PER WCDPS REVIEW

04-11-18 REVISE PER REVIEW COMMENTS

CHECK: WMP

CLIENT: CONSTELLIUM

6331 SCHOONER DRIVE VAN BUREN TWP, MI. 48111

SCALE: 1"=30'

PROJECT No.: 9173300

DWG NAME: 3300-UT

ISSUED: APRIL 11, 2018

CONSTITIUM

UTILITY PLAN

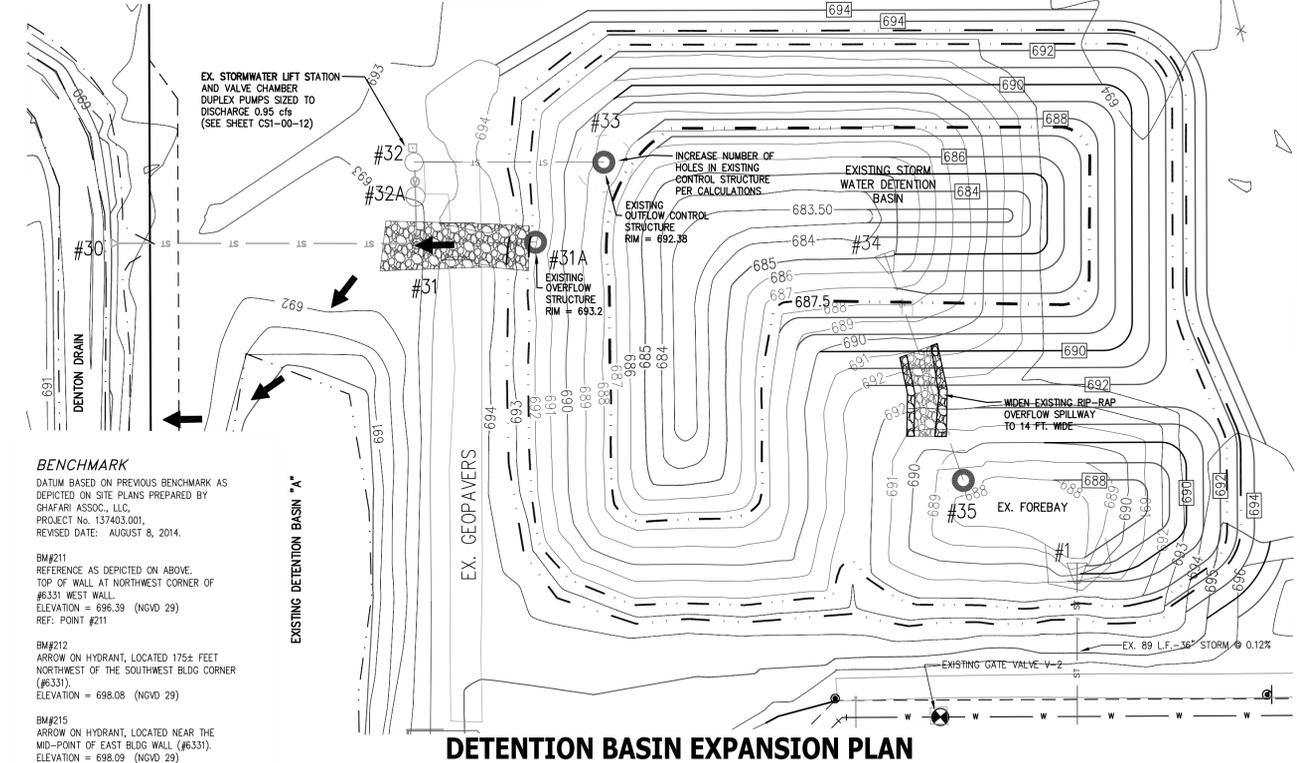
UT2

(810) 227-9533 CIVIL ENGINEERS LAND SURVEYORS 2183 PLESS DRIVE BRIGHTON, MICHIGAN 48114

CONSTELLIUM - VAN BUREN TOWNSHIP, MICHIGAN PROPOSED DETENTION SYSTEM DESIGN CALCULATIONS	
SITE DATA	
Tributary Drainage Area "A" =	12.12 Acres
Compound Runoff Coefficient "C" =	0.83
Detention Requirements = 100 year storm, Wayne County Method and in Van Buren Twp. Engineering Stds.	
MAXIMUM ALLOWABLE DISCHARGE RATE	
Van Buren Twp. Maximum Allowable Discharge Rate "Qa" =	0.10 CFS per Acre
Qa =	1.212 CFS
DETENTION REQUIREMENT CALCULATIONS	
Maximum Allowable Outflow Rate Per Acre of Impervious "Qo" = Qa / (A x C)	Qo = 0.120 CFS/Acre Impervious
Storage Time T = (-45) + SQRT(19845/Qo)	T = 360.85 Minutes
Maximum Storage Volume Per Acre of Impervious "Vs" = [(17649 x T)/(T + 45)] - 40 x Qo x T	Vs = 13,953 CF/Acre Impervious
Maximum Storage Volume "Vt" = Vs x A x C	Vt = 140,362 CF
FIRST FLUSH CALCULATIONS	
Wayne County First Flush Storage Volume "Vt ff" = 1815 x A x C	Vt ff = 18,258 CF
24 Hour Desired Average Release Rate "Qavg ff" = Vt ff / 86400	Qavg ff = 0.211 CFS
BANK FULL FLOOD CALCULATIONS	
Bank Full Flood Storage Volume "Vt bf" = 5160 x A x C	Vt bf = 51,908 CF
40 Hour Desired Average Release Rate "Qavg bf" = Vt bf / 144000	Qavg bf = 0.360 CFS

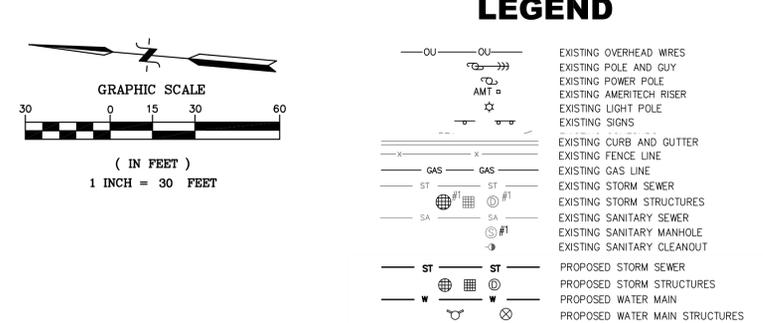
DETENTION BASIN VOLUME CALCULATIONS					
Design Forebay Volume:					
Elevation	Area (SF)	Average Area (SF)	Depth (FT)	Volume (CF)	Cumulative Volume (CF)
688.00	1,338	0	0	0	0
689.00	2,528	1,933	1.0	1,933	1,933
690.00	4,026	3,277	1.0	3,277	5,210
691.00	5,772	4,899	1.0	4,899	10,109
691.50	6,830	6,301	0.5	3,151	13,260
692.00	7,890	7,360	0.5	3,680	16,940
692.20	8,317	8,104	0.2	1,621	18,560
692.50	8,967	8,642	0.3	2,593	21,153
Design Forebay Volume =				18,560	CF
Minimum Required Forebay Volume =				18,258	CF
First Flush Storage Elevation "Zff" = 692.0 + (692.5 - 692.0) x [(18,258-16,940) / (21,153-16,940)]					
Zff =				692.16	Use 692.20

Design Detention Volume:					
Elev. (feet)	Area (ft ²)		Incremental Volumes (ft ³)		Cumul. Volume (ft ³)
	Basin Only	Forebay (only above elev. Zi)	Basin Only	Forebay (only above elev. Zi)	
687.50	14,533	0	0	0	0
688.00	16,303	7,709	0	7,709	7,709
688.50	18,361	8,666	0	16,375	16,375
689.00	20,420	9,695	0	26,070	26,070
689.50	22,557	10,744	0	36,815	36,815
690.00	24,694	11,813	0	48,627	48,627
690.50	26,834	12,882	0	61,509	61,509
691.00	28,974	13,952	0	75,461	75,461
691.50	31,238	15,053	0	90,514	90,514
692.00	33,502	16,185	0	106,699	106,699
692.20	34,436	8,317	6,794	113,493	113,493
692.50	36,810	8,967	10,687	126,773	126,773
693.00	38,262	10,095	18,768	150,306	150,306
Total Design Detention Volume =				150,306	CF
Minimum Required Detention Volume =				140,362	CF
Adjusted Bank Full Flood Storage Volume "Vt bf - adjusted" = Vt bf - Vt ff					
Vt bf - adjusted =				33,649	CF
Adjusted Bank Full Flood Storage Elevation "Zbf" = 689.00 + (689.50 - 689.00) x [(33,649 - 26,070) / (36,815 - 26,070)]					
Zbf =				689.35	FT
Adjusted Maximum Storage Volume "Vt - adjusted" = Vt - Vt ff					
Vt - adjusted =				122,104	CF
Adjusted Maximum Storage Elevation "Z100" = 692.00 + (692.50 - 692.00) x [(122,104 - 106,699) / (126,773 - 106,699)]					
Z100 =				692.38	FT

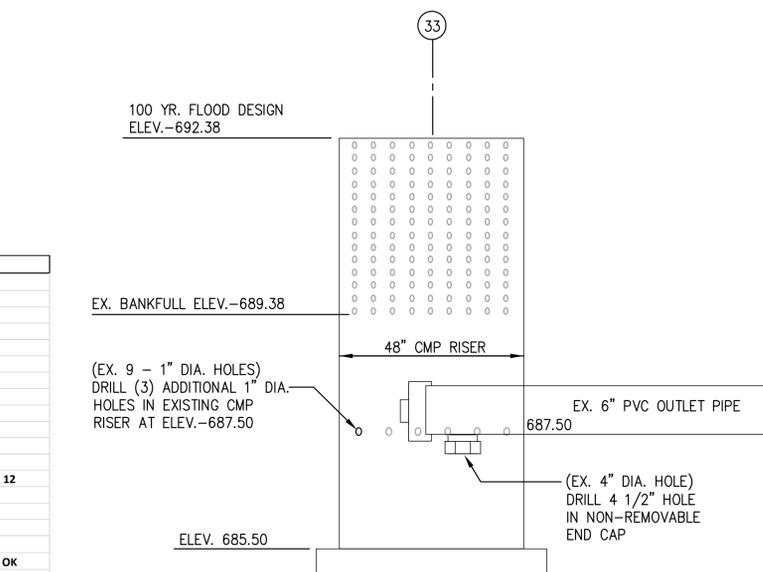


FOREBAY OUTLET DESIGN CALCULATIONS	
First Flush Storage Elevation "Zff" =	692.20
24 Hour Average Release Rate "Qavg ff" =	0.211 CFS
First Flush Average Head "Havg ff" = (2/3) x (Zff - Zout)	
Zout = Outlet Invert (low water level) + Dout (pipe diameter)	
Assume Dout = 4 inches	
Zout =	688.33
Havg ff =	2.55 Feet
Outlet Pipe Area "Aout" = Qavg ff / (0.62 x (SQRT(2 x g x Havg ff)))	
Aout =	0.0266 SF
Dout =	0.1840 FT
Dout =	2.21 Inches
EXISTING OUTLET PIPE is a 4" diameter pipe with a 2.00" diameter orifice drilled in end cap.	
Dout =	4 Inches
Aout =	0.0873 SF
Do =	2 Inches
Ao =	0.0218 SF
24 Hour Actual Average Release Rate "Qact ff" = (0.62 x Ao x SQRT(2 x g x Havg ff))	
Qact ff =	0.173 CFS
Actual Holding Time "Tff" = Vt ff / (Qavg ff x 3600)	
Tff =	29.27 Hours
Forebay Outlet Pipe Slope Sfb = [(Qavg ff x n) / (1.486 x Aout x R^(2/3))]^2	
Qact ff =	0.173 CFS
Aout =	0.0873 SF
n =	0.012 PVC Pipe
R = Dout / 4 =	0.083 FT
Sfb =	0.71% , use 4" at 0.70%
Check Pipe Velocity "V" = Qact ff / Aout:	
Maximum Allowable Velocity Vmax =	8.00 FPS
V = 0.142 / 0.19635 =	1.99 FPS
FOREBAY WEIR DESIGN CALCULATIONS	
Peak flow rate tributary to the forebay for the 10-year storm	
Q =	31.72 CFS
Discharge Through Cipolette Weir "Qw" = 3.367 x W x H^3/2	
*Height "H" = Top of Berm - Zff =	0.80 FT
Width "W" = Q10 / (3.367xH^3/2) =	13.17 FT
INCREASE WIDTH: W = 14.00 FT	

DETENTION BASIN DESIGN CALCULATIONS	
Required Bank Full Flood Storage Volume Vt bf =	51,908 CF
Qavg bf = Vbf / 144000 =	0.360 cfs
Adjusted Bank Full Flood	Zbf = 689.35 FT
Average Bank Full Head "Havg bf" = (2/3) x (Zbf - Zout)	
Zout = Low Water Level =	687.50
Havg bf =	1.24 FT
Total Required Orifice Area "Atr" = Qavg bf / (0.62 x SQRT(2 x g x Havg bf))	
Atr =	0.065 SF
Orifice Diameter "Do" =	1 inch
Orifice Area "Ao" =	0.00545 SF
Number of Orifices Required "N" = Atr / Ao =	11.92 Orifices
INCREASE NUMBER OF ORIFICES - TOTAL = 12	
Actual Average Release Rate Qavg bf = 0.62 x Ao x N x (SQRT(2 x g x Havg bf))	Qavg bf = 0.363 CFS
Actual Holding Time Tbf = Vtbf / (Qavg bf x 3600)	Tbf = 39.73 Hours
Check forebay design assumptions:	
Qavg ff =	0.173 cfs
Downstream invert elevation of forebay outlet pipe =	687.55
Downstream crown elevation of forebay outlet pipe =	687.88
Detention basin head "h" = (Qavg ff / (0.62 x Ao x N))^2 / (2 x g)	h = 0.28 FT
First flush water elevation in detention basin "Zff db" = detention basin low water level + h	Zff db = 687.78 < 687.88
Determine Outlet Pipe Diameter, Slope and Restrictor Diameter:	
Maximum Allowable Release Rate Qmax = Qa =	1.212 CFS
High Water Level "HWL" =	692.38
Low Water Level "LWL" = Outlet Invert =	687.50
Outlet Pipe Diameter "Dout" =	6.00 inches
Zout = LWL + Dout =	688.00
Maximum Head Elevation "Hmax" = HWL - Zout =	4.38 FT
Outlet Area "Aout" = Qmax / (0.62 x (SQRT(2 x g x Hmax)))	Aout = 0.1163 SF
Dout =	4.62 Inches
EXISTING OUTLET PIPE is a 6" diameter pipe with a 4.00" diameter hole drilled in end cap.	
INCREASE OUTLET ORIFICE to a 4.50" diameter hole drilled in the end cap.	
Dout =	6.00 Inches
Aout =	0.1964 SF
Do =	4.50 Inches
Ao =	0.1104 SF
Actual Maximum Release Rate Qmax = 0.62 x Ao x (SQRT(2 x g x Hmax))	
Qmax =	1.151 CFS
Check velocity of outlet pipe flowing full V = Qmax / Aout	
V =	5.86 fps
Based on the original approval, due to outlet depth and pipe cover issues, the outflow pipe is sized to discharge 15.5cfs, approximately half of the design 10-year storm event. In addition, the overflow elevation was raised to 693.20 feet.	
Design discharge pipe: 24" dia. CMP @ 0.47%	Q = 15.5 cfs
*Height "H" = Top of Berm - Zff =	0.50 FT
Width "W" = Q10 / (3.367xH^3/2) =	13.63 FT (Existing vWidth = 13')
INCREASE WEIR WIDTH TO: W = 14.00 FT	



DETENTION BASIN ELEVATIONS:		
OVERFLOW ELEVATION	APPROVED 693.20	PROPOSED 693.20
HIGH WATER ELEVATION	692.39	692.38
LOW WATER ELEVATION	687.50	687.50



EXISTING OUTLET CONTROL STRUCTURE DETAIL (STR. #33)
NOT TO SCALE

*NOTE FOR DRILLING ADDITIONAL HOLES IN THE EXISTING CMP RISER
DAMAGE TO THE ALUMINIZED/GALVANIZED COATING OF THE EXISTING CMP RISER OUTLET CONTROL STRUCTURE CAUSED BY DRILLING THE PROPOSED ADDITIONAL THREE HOLES SHOULD BE REPAIRED IN ACCORDANCE WITH ASTM A 760 SECTION 11. MAINTAIN 6" MINIMUM SPACING BETWEEN HOLES.



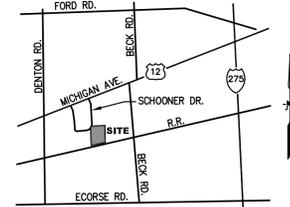
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DESIGN INC
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CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

EXHIBIT A



LOCATION MAP
NOT TO SCALE

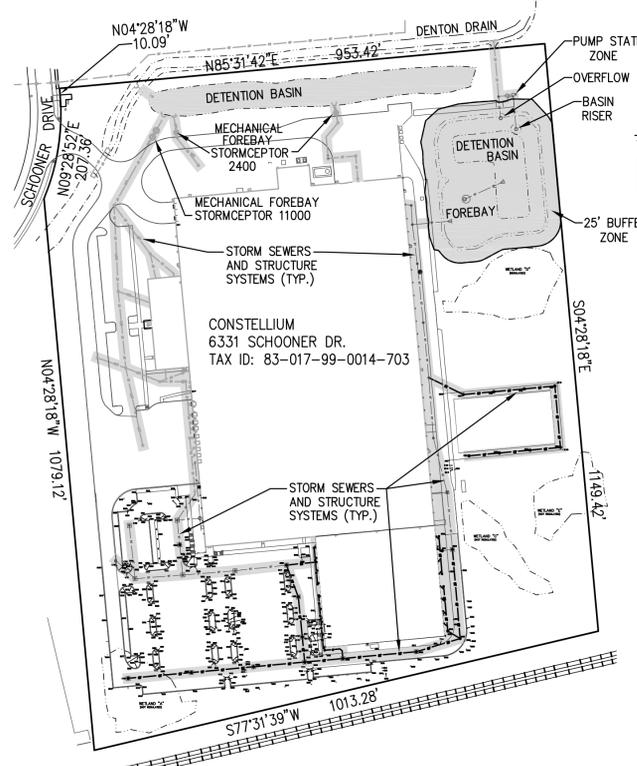
LEGAL DESCRIPTION

Situated in the Township of Van Buren, County of Wayne and State of Michigan, and described as follows:
Being a part of the Northeast 1/4 of Section 5, Town 3 South, Range 8 East, Van Buren Township, Wayne County, Michigan, and described as follows: BEGINNING S88°09'00"W 1215.10 feet and S04°8'18"E 1011.81 feet from the Northeast Corner of Section 5; thence S04°28'18"E 1149.42 feet; thence S77°31'39"W 1013.28 feet; thence N04°28'18"W 1079.12 feet; thence along a curve concave to the West, having a radius of 430.00 feet and a chord bearing N09°28'52"E 207.36; thence N04°28'18"W 10.09 feet; thence N85°31'42"E 953.42 feet to the Place of Beginning. Subject to and together with all easements and restrictions affecting title to the above described premises.

WAYNE COUNTY DPS PERMIT: M-
WAYNE COUNTY DPS PLAN REVIEW: R18-026

PROJECT: CONSTELLIUM 6331 Schooner Drive Belleville, MI 48111 Wayne County, MI	PROPERTY OWNER: ARC CSVBTM001, LLC 6331 Schooner Drive Belleville, MI 48111 Contact: Jason Elerson Phone: (734) 879-9726	SCALE: NO SCALE PROJECT No.: 9173300 DWG NAME: 3300.MNGMT MAR. 01, 2018	(810) 227-9533 CIVIL ENGINEERS LAND SURVEYORS 2183 PLESS DRIVE BRIGHTON, MICHIGAN 48114
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EXHIBIT A PHYSICAL LIMITS OF STORM WATER MANAGEMENT SYSTEM



LEGEND

- VAN BUREN TOWNSHIP STORM MAINTENANCE RESPONSIBILITY
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- CATCH BASIN
- MANHOLE
- FLARED END SECTION
- CONTROL STRUCTURE

PROJECT: CONSTELLIUM 6331 Schooner Drive Belleville, MI 48111 Wayne County, MI	PROPERTY OWNER: ARC CSVBTM001, LLC 6331 Schooner Drive Belleville, MI 48111 Contact: Jason Elerson Phone: (734) 879-9726	SCALE: NO SCALE PROJECT No.: 9173300 DWG NAME: 3300.MNGMT MAR. 01, 2018	(810) 227-9533 CIVIL ENGINEERS LAND SURVEYORS 2183 PLESS DRIVE BRIGHTON, MICHIGAN 48114
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EXHIBIT B

STORM WATER MANAGEMENT SYSTEM LONG-TERM MAINTENANCE PLAN

PROPERTY INFORMATION:
CONSTELLIUM
6331 SCHOONER DRIVE
BELLEVILLE, MI 48111
WAYNE COUNTY, MICHIGAN

PROPERTY OWNER:
ARC CSVBTM001, LLC
6331 SCHOONER DRIVE
BELLEVILLE, MI 48111

**WAYNE COUNTY DPS PERMIT NO: M-
WAYNE COUNTY DPS PLAN REVIEW NO: R18-026**

A. Physical Limits of the Storm Water Management System
The Storm Water Management System (SWMS) subject to this Long-Term Maintenance Plan is depicted on Exhibit A to the Maintenance Agreement and includes, without limitations, the storm sewers, swales, manholes, catch basins, storm water inlets, forebay, spillway, detention basin, outlet structures, pump station, buffer zone, and closed conduits that convey flow from the detention basin to the Wayne County Denton Drain.

For purposes of this Plan, this Storm Water Management System and all of its components as shown on Exhibit A is referred to as the "CONSTELLIUM SWMS".

B. Time Frame for Long-Term Maintenance Responsibility
ARC CSVBTM001, LLC is responsible for maintaining the CONSTELLIUM SWMS, which includes complying with applicable requirements of the Van Buren Township or Wayne County Soil Erosion and Sedimentation Control program, and Wayne County releases the construction permit. Long-Term Maintenance responsibility for the CONSTELLIUM SWMS commences when defined by the Maintenance Permit issued by Wayne County. Long-Term Maintenance continues in perpetuity.

C. Manner of Ensuring Maintenance Responsibility
Van Buren Township has assumed responsibility for Long-Term Maintenance of the CONSTELLIUM SWMS. ARC CSVBTM001, LLC, through a Maintenance Agreement with Van Buren Township to reimburse for maintenance, repairs, restoration, and any necessary construction of the CONSTELLIUM SWMS, has agreed to perform the necessary maintenance activities required by this Plan. Van Buren Township retains the right to enter the property and perform the necessary maintenance of the CONSTELLIUM SWMS if ARC CSVBTM001, LLC fails to perform the required maintenance activities.

To ensure that the CONSTELLIUM SWMS is maintained in perpetuity, the map of the physical limits of the Storm Water Management System (Exhibit A), this Plan (Exhibit B), the resolution attached as Exhibit C, and the Maintenance Agreement between Van Buren Township and the Property Owner shall be recorded with the Wayne County Register of Deeds. Upon recording, a copy of the recorded document will be provided to the County and Township.

D. Long-Term Maintenance Plan and Schedule
Table 1 identifies the maintenance activities to be performed, organized by category (monitoring / inspections, preventative maintenance and remedial actions). Table 1 also identifies site-specific work needed to ensure that the Storm Water Management System functions properly as designed. While performing maintenance, chemicals should not be applied to the forebay, open detention basin, or in along watercourses.

MAINTENANCE ACTIVITIES	SYSTEM COMPONENTS							FREQUENCY
	Storm Collection System (inlets, manholes, swales, sewers)	Inlets to Forebays & Detention Basins	Mechanical / Open Forebays & Det. Basins	Pump, Outlet Control Structures, Pipes	Spillways, Rip Rap	Pavement areas, Others		
MONITORING / INSPECTION								
Inspect for sediment accumulation** and/or clogging of stone filter	X	X	X	X	X			Annually
Inspect for floatables, dead vegetation, and debris	X	X	X	X	X			Annually and after major storm events
Inspect for erosion and integrity of banks and berms	X	X	X	X	X			Annually and after major storm events
Monitor plantings and vegetation	X	X	X	X	X			2 Times per year
Inspect all components during wet weather & compare to As-Built Plans	X	X	X	X	X			Annually
Ensure means of access for maintenance remain clear and open	X	X	X	X	X			Annually
PREVENTATIVE MAINTENANCE								
Mowing			X		X			As needed, select areas only*
Remove accumulated sediment	X	X	X	X				As needed**
Remove floatables, dead vegetation, and debris	X	X	X	X				As needed
Replace or wash and reuse stone filter filters			X					Every 3 years, or as needed***
Sweeping of Paved Surfaces, Clean Out Oil Spills	X	X	X	X	X	X	X	As Needed/Clean Oil Spills Immediately
REMEDIAL ACTIONS								
Repair / Stabilize areas of erosion	X	X	X	X	X	X		As Needed
Replace dead plantings, bushes, trees, Reseed Bare Areas	X	X	X	X				As Needed
Structural repairs	X	X	X	X	X			As Needed
Make adjustments / repairs to ensure proper functioning	X	X	X	X	X			As Needed
NOTES								
*As per Local Community Ordinance ** Mechanical Forebays, open Forebays & Detention Basins to be cleaned whenever sediments accumulate to a depth of 6-12 inches, or if sediment resuspension is observed. *** Replace stones if they can not be adequately cleaned.								

PROJECT: CONSTELLIUM 6331 Schooner Drive Belleville, MI 48111 Wayne County, MI	PROPERTY OWNER: ARC CSVBTM001, LLC 6331 Schooner Drive Belleville, MI 48111 Contact: Jason Elerson Phone: (734) 879-9726	SCALE: NO SCALE PROJECT No.: 9173300 DWG NAME: 3300.MNGMT MAR. 01, 2018	(810) 227-9533 CIVIL ENGINEERS LAND SURVEYORS 2183 PLESS DRIVE BRIGHTON, MICHIGAN 48114
---	---	---	---

DESIGN: WMP	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: L.F.		03-01-18	REVISED PER WCDPS REVIEW			
CHECK: WMP						



STORMWATER MANAGEMENT SYSTEM MAINTENANCE PLAN

CLIENT: CONSTELLIUM
6331 SCHOONER DRIVE
VAN BUREN TWP, MI, 48111

SCALE: N/A
PROJECT No.: 9173300
DWG NAME: 3300-MNGMT
ISSUED: **APR. 11, 2018**

UT4

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LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114**

PROPOSED PAVEMENT COORDINATES

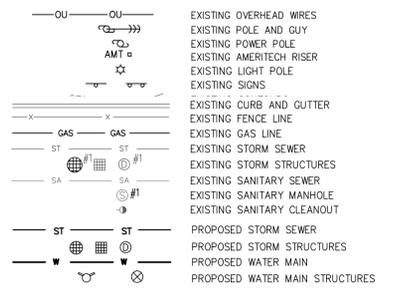
NUM	NORTHING	EASTING	ELEV	DESC
5000	277362.4655	1335494.0708	0.00	T/PAV
5001	277290.5871	1335492.1901	695.80	B/CURB
5002	277292.9060	1335495.0000	696.00	B/CURB
5003	277198.6939	1335495.2435	695.80	B/CURB
5004	277196.7706	13354929.7880	696.00	T/PAV
5005	277186.7503	1335493.7385	695.80	T/PAV
5006	277168.3665	13354927.4228	695.50	T/PAV
5007	277180.0316	13354955.9596	696.00	B/CURB
5008	277156.9832	13354952.6333	696.61	B/CURB
5009	277125.6631	13354910.7480	696.61	B/CURB
5010	277149.5986	13354904.0840	696.00	T/PAV
5011	277148.6924	13354899.0903	696.00	T/PAV
5012	277120.9269	13354859.2043	696.03	B/CURB
5013	277144.7430	13354856.1396	695.42	T/PAV
5014	277138.1153	13354784.0394	696.00	T/PAV
5015	277114.2273	13354786.3806	696.61	B/CURB
5016	277112.8067	13354770.3002	696.41	B/CURB
5017	277109.5446	13354768.2175	696.61	B/CURB
5018	277109.8193	13354771.2049	0.00	T/PAV
5019	277094.1047	13354769.3368	696.61	B/CURB
5020	277086.2573	13354684.2396	696.26	B/CURB
5021	277083.5707	13354655.1199	696.21	B/CURB
5022	277093.5209	13354653.8000	696.01	B/CURB
5023	277100.2336	13354650.5759	696.61	B/CURB
5024	277091.9662	13354646.8500	0.00	T/PAV
5025	277098.8673	13354646.5927	695.96	B/CURB
5026	277096.6052	13354643.8800	695.96	B/CURB
5027	277096.8799	13354646.8074	0.00	T/PAV
5028	277080.1778	13354645.3905	696.21	B/CURB
5029	277071.4943	13354632.0000	696.61	B/CURB
5030	277068.1684	13354633.0332	696.61	B/CURB
5031	277081.1053	13354491.6598	696.51	B/CURB
5032	277083.8180	13354488.3977	696.51	B/CURB
5033	277080.8306	13354488.0724	0.00	T/PAV
5034	277080.4644	13354484.0000	0.00	T/PAV
5035	277083.4516	13354484.4145	696.61	B/CURB
5036	277080.1897	13354481.7018	696.61	B/CURB
5037	277085.2527	13354483.0732	696.61	B/CURB
5038	277059.4349	13354419.8044	696.61	B/CURB
5039	277051.3412	13354387.6961	696.61	B/CURB
5040	277050.3733	13354321.2579	696.41	B/CURB

NUM	NORTHING	EASTING	ELEV	DESC
5041	277085.3103	13354319.8844	696.16	B/CURB
5042	277068.0230	13354316.6223	696.16	B/CURB
5043	277065.0356	13354316.8970	0.00	T/PAV
5044	277063.0822	13354262.8890	696.41	B/CURB
5045	277123.5306	13354257.3307	697.71	B/CURB
5046	277195.5229	13354250.7107	696.30	B/CURB
5047	277245.0235	13354246.1393	697.83	B/CURB
5048	277299.1035	13354241.1450	697.27	B/CURB
5049	277301.7940	13354270.9433	696.39	B/CURB
5050	277288.2522	13354287.1891	696.31	B/CURB
5051	277288.5868	13354290.8799	696.31	B/CURB
5052	277300.4563	13354299.7687	696.51	B/CURB
5053	277303.1690	13354296.5066	696.51	B/CURB
5054	277301.7955	13354281.5696	696.51	B/CURB
5055	277303.1892	13354285.8156	0.00	T/PAV
5056	277298.5448	13354289.9023	0.00	T/PAV
5057	277300.1816	13354296.7813	0.00	T/PAV
5058	277379.1799	13354274.4540	695.91	B/CURB
5059	277406.8523	13354271.9095	696.01	B/CURB
5060	277408.7283	13354292.3119	696.01	B/CURB
5061	277410.1896	13354294.6254	696.01	B/CURB
5062	277411.7157	13354292.0372	0.00	T/PAV
5063	277423.9016	13354308.7029	696.31	B/CURB
5064	277426.8044	13354310.2436	696.31	B/CURB
5065	277443.0762	13354308.1475	696.50	T/WALK
5066	277426.5297	13354307.2562	0.00	T/PAV
5067	277445.5936	13354336.1366	695.81	T/WALK
5068	277450.0799	13354384.9261	696.30	T/WALK
5069	277434.9461	13354386.3177	696.05	T/WALK
5070	277432.2374	13354389.8788	696.05	T/WALK
5071	277433.6985	13354405.5126	696.05	T/WALK
5072	277435.2208	13354389.3051	0.00	T/PAV
5073	277367.1750	13354411.6295	696.05	T/WALK
5074	277358.7603	13354412.4033	695.55	T/WALK
5075	277353.6683	13354412.6955	695.55	T/WALK
5076	277336.5222	13354414.4481	696.55	T/WALK
5077	277331.7847	13354414.8837	696.55	T/WALK
5078	277323.6627	13354415.6305	696.12	T/WALK
5079	277322.4723	13354402.6851	696.12	T/WALK
5080	277317.0355	13354398.1840	696.31	T/WALK
5081	277317.4933	13354403.1430	0.00	T/PAV
5082	277316.1770	13354399.7429	696.31	T/WALK

NUM	NORTHING	EASTING	ELEV	DESC
5083	277310.5587	13354401.9538	696.40	T/CURB
5084	277300.2806	13354417.9782	696.75	T/CURB
5085	277293.7603	13354422.5917	696.16	T/CURB
5086	277316.6921	13354416.2715	0.00	T/PAV
5087	277394.3147	13354422.9328	0.00	T/PAV
5088	277316.5229	13354420.8774	0.00	T/PAV
5089	277319.7995	13354449.6308	0.00	T/WALK
5090	277320.4920	13354457.6962	0.00	T/WALK
5091	277304.8225	13354451.0042	695.45	T/WALK
5092	277302.1098	13354454.2653	695.45	T/WALK
5093	277302.7830	13354454.2579	695.45	T/WALK
5094	277305.5550	13354458.9706	695.45	T/WALK
5095	277305.2804	13354455.9832	0.00	T/PAV
5096	277305.0972	13354453.9916	0.00	T/PAV
5097	277305.9208	13354463.8821	695.05	T/WALK
5098	277321.9796	13354462.6712	695.05	T/WALK
5099	277318.9521	13354461.9707	695.86	T/CURB
5100	277322.4374	13354460.5000	5.00	T/PAV
5101	277320.5087	13354468.8993	696.05	T/CURB
5102	277337.9352	13354467.2869	696.20	T/WALK
5103	277276.1957	13354468.4626	695.10	T/WALK
5104	277212.4645	13354468.8341	696.05	T/WALK
5105	277198.5318	13354460.2991	696.39	T/CURB
5106	277195.3192	13354467.1121	696.05	T/CURB
5107	277192.3318	13354467.3868	0.00	T/PAV
5108	277194.2140	13354461.4743	0.00	T/PAV
5109	277191.0770	13354464.6619	696.11	T/CURB
5110	277186.7455	13354462.1610	696.20	T/CURB
5111	277187.5696	13354461.1232	696.05	T/WALK
5112	277188.8423	13354464.9648	696.36	T/CURB
5113	277189.9221	13354465.7046	696.36	T/CURB
5114	277186.6494	13354462.8630	696.05	T/WALK
5115	277188.2373	13354468.3819	696.00	T/CURB
5116	277185.1897	13354467.8386	695.96	T/CURB
5117	277186.8984	13354469.5849	696.87	T/CURB
5118	277185.2877	13354468.5410	697.00	T/CURB
5119	277186.4642	13354460.0095	0.00	T/PAV
5120	277186.6669	13354463.9648	696.05	T/WALK
5121	277185.7509	13354465.7963	696.05	T/WALK
5122	277185.8960	13354463.1279	696.03	T/CURB
5123	277186.0920	13354465.0864	696.03	T/CURB
5124	277182.5986	13354463.4026	0.00	T/PAV
5125	277185.4685	13354466.8770	696.75	T/CURB
5126	277182.9900	13354467.5637	696.03	T/CURB
5127	277188.8141	13354466.5259	696.05	T/CURB
5128	277188.5932	13354468.5048	696.05	T/PAV
5129	277133.7965	13354462.3842	696.00	B/CURB
5130	277143.3907	13354461.5020	696.11	T/CURB
5131	277152.7041	13354460.3698	695.96	B/CURB
5132	277162.4858	13354412.2146	696.05	T/CURB
5133	277159.2238	13354469.5019	696.05	T/CURB
5134	277141.7755	13354461.1063	696.20	T/CURB
5135	277158.4980	13354462.4893	0.00	T/PAV
5136	277155.0174	13354462.9901	0.00	T/PAV
5137	277133.1098	13354461.9177	0.00	T/PAV
5138	277126.6287	13354461.3278	0.00	T/PAV
5139	277128.3540	13354462.3404	696.01	T/CURB
5140	277125.6413	13354461.5025	696.01	T/CURB
5141	277207.9520	13354460.0462	0.00	T/PAV
5142	277222.9549	13354603.6417	696.26	T/CURB
5143	277192.0851	13354606.4802	696.26	T/CURB
5144	277189.3724	13354609.7423	696.16	T/CURB
5145	277226.2170	13354606.3544	696.16	T/CURB

NUM	NORTHING	EASTING	ELEV	DESC
5146	277219.4352	13354496.9616	T/CURB	
5147	277197.5277	13354416.5241	696.16	T/CURB
5148	277223.2296	13354406.6291	0.00	T/PAV
5149	277192.3598	13354406.4676	0.00	T/PAV
5150	277218.7485	13354407.0411	0.00	T/PAV
5151	277196.8896	13354408.0556	697.31	T/CURB
5152	277208.4814	13354415.6168	696.36	T/CURB
5153	277212.2511	13354499.2808	696.26	T/CURB
5154	277272.2126	13354489.6567	696.16	T/CURB
5155	277283.1664	13354480.6492	697.31	T/CURB
5156	277261.2588	13354461.0639	696.00	T/CURB
5157	277255.8163	13354460.6200	696.10	T/CURB
5158	277286.6860	13354459.7815	696.30	T/CURB
5159	277289.9481	13354460.4842	696.05	T/CURB
5160	277285.1036	13354463.8821	696.05	T/CURB
5161	277282.4796	13354460.1810	0.00	T/PAV
5162	277260.5211	13354463.1954	0.00	T/PAV
5163	277256.0910	13354464.7649	696.71	T/CURB
5164	277286.9607	13354460.7689	0.00	T/PAV
5165	277275.0259	13354492.7247	695.91	T/CURB
5166	277279.7386	13354488.4626	695.91	T/CURB
5167	277246.1561	13354495.5632	696.33	T/CURB
5168	277242.8940	13354492.8505	696.39	T/CURB
5169	277245.8814	13354492.5798	0.00	T/PAV
5170	277276.7512	13354494.3700	0.00	T/PAV
5171	277272.2011	13354494.0000	7.50	T/PAV
5172	277250.3625	13354492.1638	0.00	T/PAV
5173	277248.6758	13354484.6954	696.91	T/CURB
5174	277271.5834	13354482.6809	696.95	T/CURB
5175	277273.2948	13354489.4849	696.87	T/CURB
5176	277272.8599	13354490.0042	697.11	T/CURB
5177	277282.4250	13354501.4234	696.87	T/CURB
5178	277179.1629	13354498.7107	696.77	T/CURB
5179	277185.9446	13354490.5556	696.91	T/CURB
5180	27717			

LEGEND



CASTING SCHEDULE

STORM MANHOLE	EJIW 1040
CATCHBASIN (CURB)	EJIW 5080
CATCHBASIN (PAVEMENT)	EJIW 1040; MI COVER
YARD BASIN	EJIW 1000; N COVER
GATE WELL	EJIW 1000; A COVER

WATER MAIN QUANTITIES

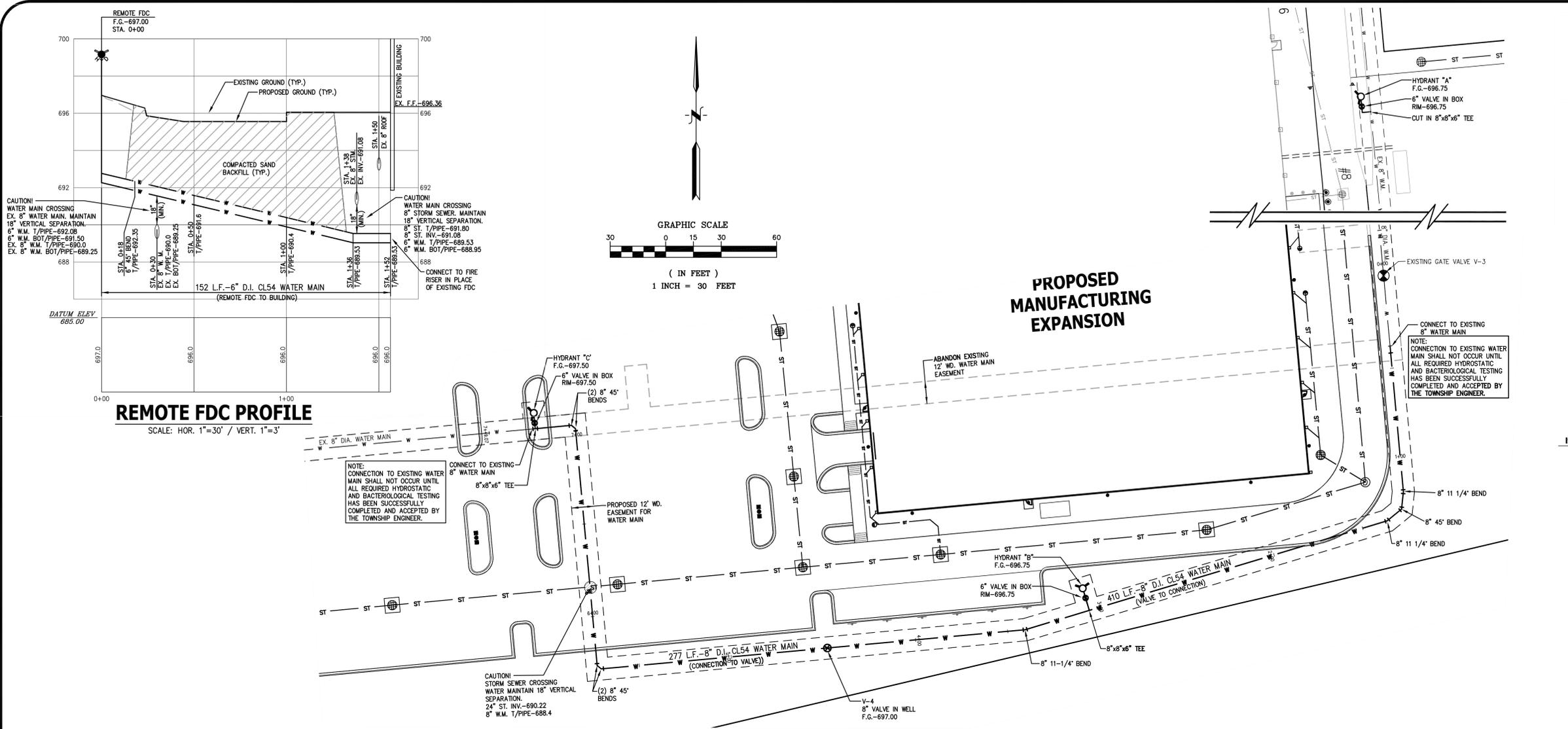
Item	Water Main Construction	Quantity	Unit
1	8" CL54 D.I. Water main	687	L.F.
2	6" CL54 D.I. Water main	190	L.F.
3	8" Gate valve in well	1	Each
4	6" Gate valve in well	3	Each
5	Hydrants	3	Each
6	8"x8"x6" Tee	3	Each
7	8" 45 Degree Bend	5	Each
8	8" 22 1/2 Degree Bend	1	Each
9	8" 11 1/4 Degree Bend	2	Each
10	6" 90 Degree Bend	1	Each
11	8" Valve well	1	Each
12	Remote FDC	1	Each

BENCHMARK
 DATUM BASED ON PREVIOUS BENCHMARK AS DEPICTED ON SITE PLANS PREPARED BY GHAFARI ASSOC., LLC, PROJECT No. 137403.001, REVISED DATE: AUGUST 8, 2014.

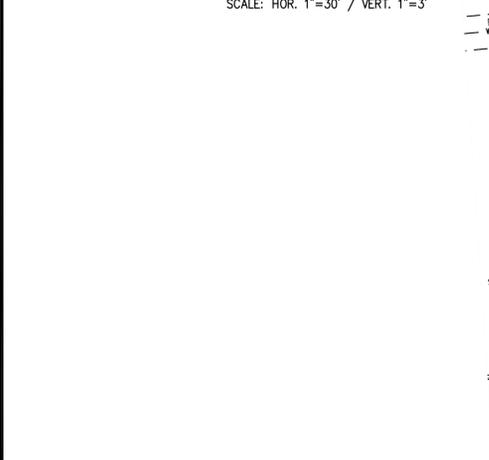
BM#211
 REFERENCE AS DEPICTED ON ABOVE. TOP OF WALL AT NORTHWEST CORNER OF #6331. ELEVATION = 696.39 (NGVD 29) REF: POINT #211

BM#212
 ARROW ON HYDRANT, LOCATED 175+ FEET NORTHWEST OF THE SOUTHWEST BLDG CORNER (#6331). ELEVATION = 698.08 (NGVD 29)

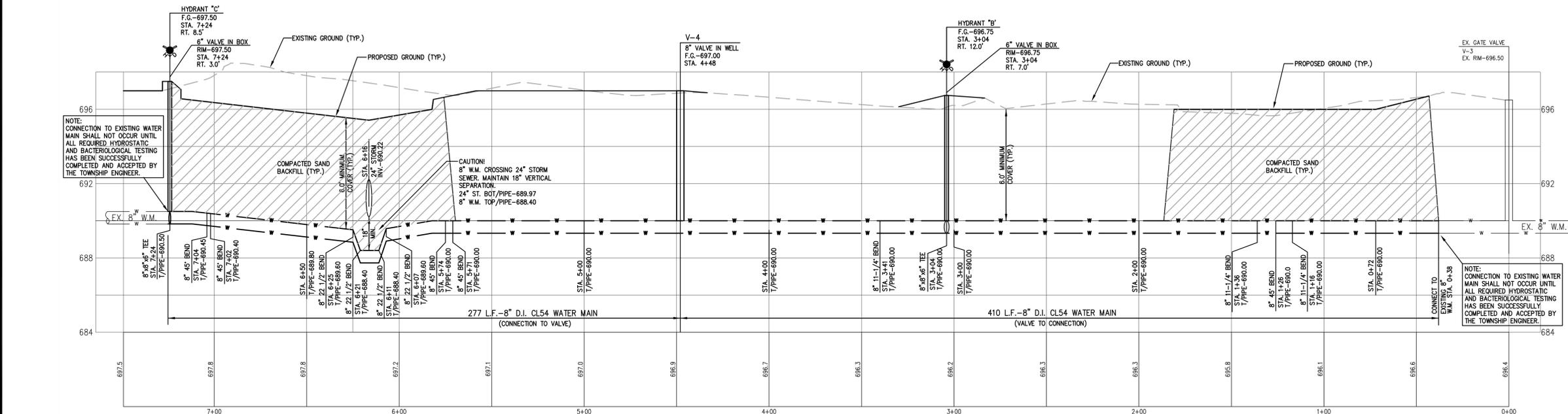
BM#215
 ARROW ON HYDRANT, LOCATED NEAR THE MID-POINT OF EAST BLDG WALL (#6331). ELEVATION = 698.09 (NGVD 29)



REMOTE FDC PROFILE
 SCALE: HOR. 1"=30' / VERT. 1"=3'



WATER MAIN PROFILE
 SCALE: HOR. 1"=30' / VERT. 1"=3'



DESIGN: WMP	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: L.F.		04-11-18	REVISED PER REVIEW COMMENTS			
CHECK: WMP						



WATER MAIN PLAN AND PROFILE

CLIENT: CONSTELLUM	SCALE: 1"=30'
6331 SCHOONER DRIVE VAN BUREN TWP, MI. 48111	PROJECT No.: 9173300
	DWG NAME: 3300-UT
	ISSUED: APRIL 11, 2018

WA

EXHIBIT "A"

Tax Parcel No.: 83-017-99-0014-703
 Parcel Owner: ARC CSVBTM001, LLC
 Parcel Owner Address: 2211 York Road, Suite 222
 Oak Brook, Illinois 60523
 Parcel Address: 6331 Schooner Drive
 Belleville, Michigan 48111
 Drainage District: Denton Drain

PARENT PARCEL DESCRIPTION:
 (Covenant Deed as recorded in Liber 52025, Page 765, Wayne County Record)

**LEGAL DESCRIPTION OF A 27.93 ACRE PARCEL OF LAND
 LOCATED IN THE NE 1/4 OF SECTION 5, TOWN 3 SOUTH, RANGE 8 EAST
 VAN BUREN TOWNSHIP, WAYNE COUNTY, MICHIGAN**

Part of the Northeast 1/4 of Section 5, Town 3 South, Range 8 East, Van Buren Township, Wayne County, Michigan, described as:
 Commencing at the South 1/4 Corner of Section 32, Town 2 South, Range 8 East;
 thence along the North line of Section, as monumented (straight line between the South 1/4 Corner of Section 32, Town 2 South, Range 8 East, and the Northeast closing corner of Section 5, Town 3 South, Range 8 East), N88°07'52"E 954.40 feet;
 thence S04°28'18"E 1011.81 feet to the **POINT OF BEGINNING**;
 thence S04°28'18"E 1149.42 feet;
 thence along the Northerly line of the railroad, S77°31'39"W 1013.28 feet;
 thence N04°28'18"W 1079.12 feet;
 thence along the Easterly line of Schooner Drive the following two courses:
 (1) along a curve concave to the West, having a radius of 430.00 feet, central angle of 27°54'20" and a chord bears N09°28'52"E 207.36 feet, an arc distance of 209.43 feet and
 (2) N04°28'18"W 10.09 feet;
 thence N85°31'42"E 953.42 feet to the Point of Beginning.
 Containing 27.93 acres, more or less. Subject to and together with all easements and restrictions affecting title to the above described premises.
 Being a part of the Northeast 1/4 of Section 5, Town 3 South, Range 8 East, Van Buren Township, Wayne County, Michigan.
 Containing 27.93 acres of land, more or less.

**NOTE: THE SKETCH AND LEGAL DESCRIPTIONS SHOWN HEREIN ARE
 BASED ON EXISTING RECORD INFORMATION AND HAS NOT
 BEEN SURVEYED.**

CIVIL ENGINEERS
 LAND SURVEYORS
DESINE INC
 PH (810) 227-9533
 FAX (810) 227-9460
 EMAIL: desine@desineinc.com
 2183 PLESS DRIVE
 BRIGHTON, MICHIGAN 48114



PREPARED FOR
ARC SCVBTM001, LLC
 SECTION 5, TOWN 3 SOUTH, RANGE 8 EAST
 VAN BUREN TOWNSHIP, WAYNE COUNTY, MICHIGAN
 JOB No. 7-15-05-173300 DATE 03/06/18
 DWG No. 173300-WTR DRAWN LMC CHECKED MLL

EXHIBIT "B"

Tax Parcel No.: 83-017-99-0014-703
 Parcel Owner: ARC CSVBTM001, LLC
 Parcel Owner Address: 2211 York Road, Suite 222
 Oak Brook, Illinois 60523
 Parcel Address: 6331 Schooner Drive
 Belleville, Michigan 48111
 Drainage District: Denton Drain

DENTON DRAIN EASEMENT LEGAL DESCRIPTION

**LEGAL DESCRIPTION OF A VARIABLE WIDTH DRAINAGE EASEMENT
 0.70 ACRE (30,569 Square Feet) PARCEL OF LAND
 LOCATED IN THE NE 1/4 OF SECTION 5, TOWN 3 SOUTH, RANGE 8 EAST
 VAN BUREN TOWNSHIP, WAYNE COUNTY, MICHIGAN**

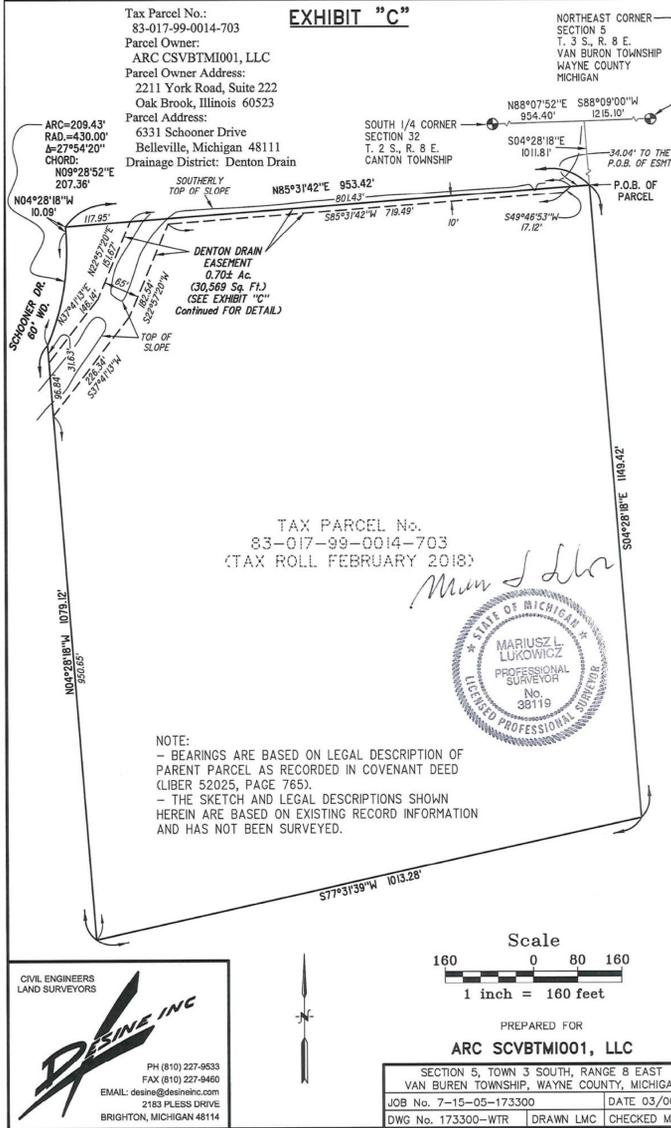
Part of the Northeast 1/4 of Section 5, Town 3 South, Range 8 East, Van Buren Township, Wayne County, Michigan, described as:
 Commencing at the South 1/4 Corner of Section 32, Town 2 South, Range 8 East;
 thence N88°07'52"E 954.40 feet along the North line of said Section 5;
 thence S04°28'18"E 1011.81 feet;
 thence S85°31'42"W 34.04 feet to the **POINT OF BEGINNING**;
 thence S49°46'53"W 17.12 feet;
 thence S85°31'42"W 719.49 feet;
 thence S22°57'20"W 182.54 feet;
 thence S37°41'13"W 226.34 feet;
 thence N04°28'18"W 96.84 feet;
 thence N37°41'13"E 146.14 feet;
 thence N22°57'20"E 151.67 feet;
 thence N85°31'42"E 801.43 feet to the Point of Beginning.
 Being a part of the Northeast 1/4 of Section 5, Town 3 South, Range 8 East, Van Buren Township, Wayne County, Michigan.
 Containing 0.70 acres (30,569 square feet), more or less. Subject to and together with all easements and restrictions affecting title to the above described premises.

**NOTE: THE SKETCH AND LEGAL DESCRIPTIONS SHOWN HEREIN ARE
 BASED ON EXISTING RECORD INFORMATION AND HAS NOT
 BEEN SURVEYED.**

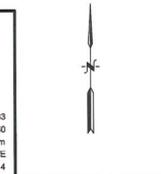
CIVIL ENGINEERS
 LAND SURVEYORS
DESINE INC
 PH (810) 227-9533
 FAX (810) 227-9460
 EMAIL: desine@desineinc.com
 2183 PLESS DRIVE
 BRIGHTON, MICHIGAN 48114



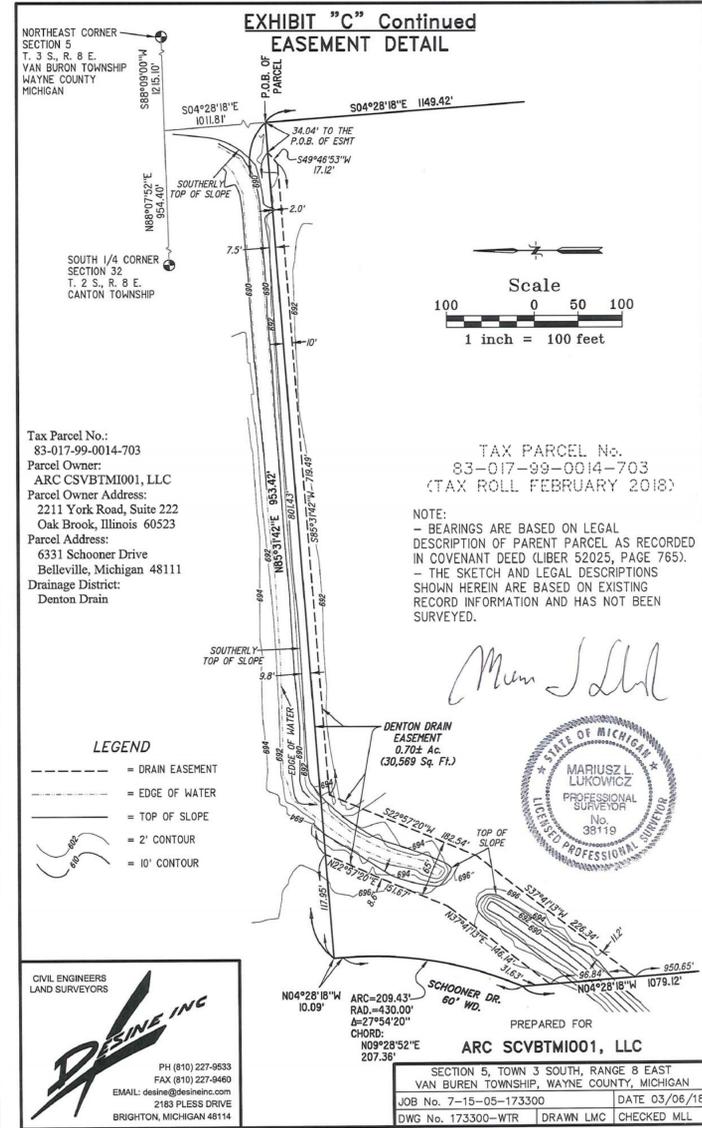
PREPARED FOR
ARC SCVBTM001, LLC
 SECTION 5, TOWN 3 SOUTH, RANGE 8 EAST
 VAN BUREN TOWNSHIP, WAYNE COUNTY, MICHIGAN
 JOB No. 7-15-05-173300 DATE 03/06/18
 DWG No. 173300-WTR DRAWN LMC CHECKED MLL



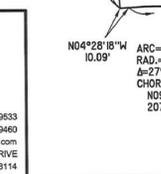
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 JOB No. 7-15-05-173300 DATE 03/06/18
 DWG No. 173300-WTR DRAWN LMC CHECKED MLL



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PREPARED FOR
ARC SCVBTM001, LLC
 SECTION 5, TOWN 3 SOUTH, RANGE 8 EAST
 VAN BUREN TOWNSHIP, WAYNE COUNTY, MICHIGAN
 JOB No. 7-15-05-173300 DATE 03/06/18
 DWG No. 173300-WTR DRAWN LMC CHECKED MLL

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 (TOLL FREE)
 OR VISIT CALL811.COM

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 (810) 227-9533
 CIVIL ENGINEERS
 LAND SURVEYORS
 2183 PLESS DRIVE
 BRIGHTON, MICHIGAN 48114

DESIGN: WMP	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: L.F.		03-06-18	REVISE EASEMENT PER REVIEW COMMENTS			
CHECK: WMP						

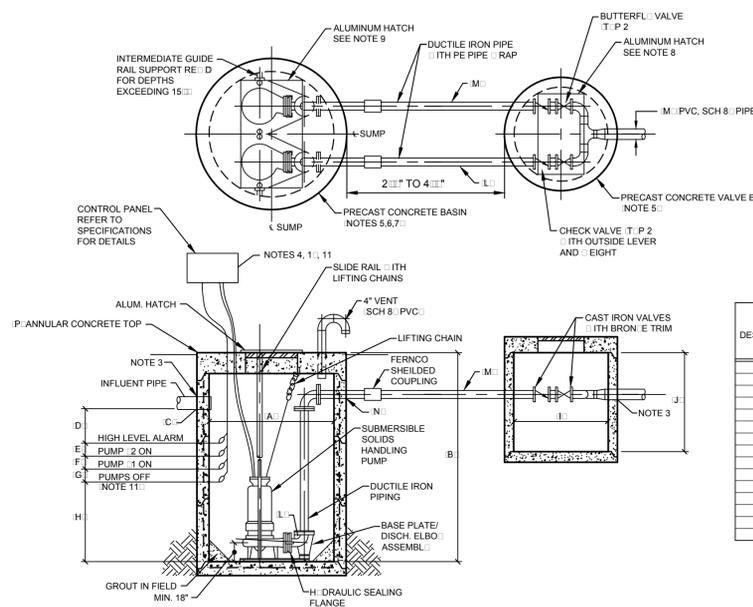


**DENTON DRAIN
 EASEMENT**

CLIENT: CONSTELLIUM
 6331 SCHOONER DRIVE
 VAN BUREN TWSP, MI, 48111

SCALE: N/A
 PROJECT No.: 9173300
 DWG NAME: 3300-MNGMT
 ISSUED: APR. 11, 2018

DD



DESIGNATION	ITEM	46 NORTH TRUCK DOCK LIFT	32 SOUTH TRUCK DOCK LIFT	32 DETENTION POND LIFT
A	MINIMUM SUMP DIAM.	5'	6'	6'
B	OVERALL HEIGHT	13'	12'	15'
C	I.E. INLET PIPE	687.65	687.44	686.
D	I.E. INLET TO HIGH LEVEL ALARM	25'	25'	25'
E	HIGH LEVEL ALARM TO PUMP 2 ON	25'	25'	25'
F	PUMP 2 ON TO PUMP 1 ON	25'	25'	25'
G	PUMP 1 ON TO PUMP 1 OFF	2.5'	6.5'	6.6'
H	PUMP 1 OFF TO BOTTOM	18'	18'	18'
I	MINIMUM VALVE BOX DIAM.	4'	4'	4'
J	VALVE BOX HEIGHT	7'	7'	7'
K	ACCESS DOOR OPENING	48" X 3'	48" X 3'	48" X 3'
L	DIAMETER PUMP DISCHARGE PIPE	3"	6"	4"
M	NOMINAL PIPE DIAMETER	3"	8"	6"
N	INVERT ELEV. PUMP DISCHARGE PIPE	69.4'	69.58'	69.55'
P	TOP ELEVATION	696.1'	696.1'	693.5'

DUPLEX PUMP LIFT STATION

SERVICE TO	MEDIUM	TEMP (F)	CAPACIT (GPM)	HEAD (FT)	MOTOR SIZE (HP / RPM)	ELECTRICAL CHAR.	REFERENCE MANUFACTURER MODEL NO.	REMARKS	ACCESSORIES
46 TRUCK DOCK NORTH	STORM WATER	4	9	21	3 / 35	46 / 3/6	H DROMATIC S3HVX	DUPLEX SUBMERSIBLE PUMP	
46 TRUCK DOCK SOUTH	STORM WATER	4	1575	25	15 / 175	46 / 3/6	H DROMATIC SBLX	DUPLEX SUBMERSIBLE PUMP	
32 DETENTION POND	STORM WATER	4	426	19	5 / 875	46 / 3/6	H DROMATIC S4LX	DUPLEX SUBMERSIBLE EXPLOSION PROOF PUMP	1,2

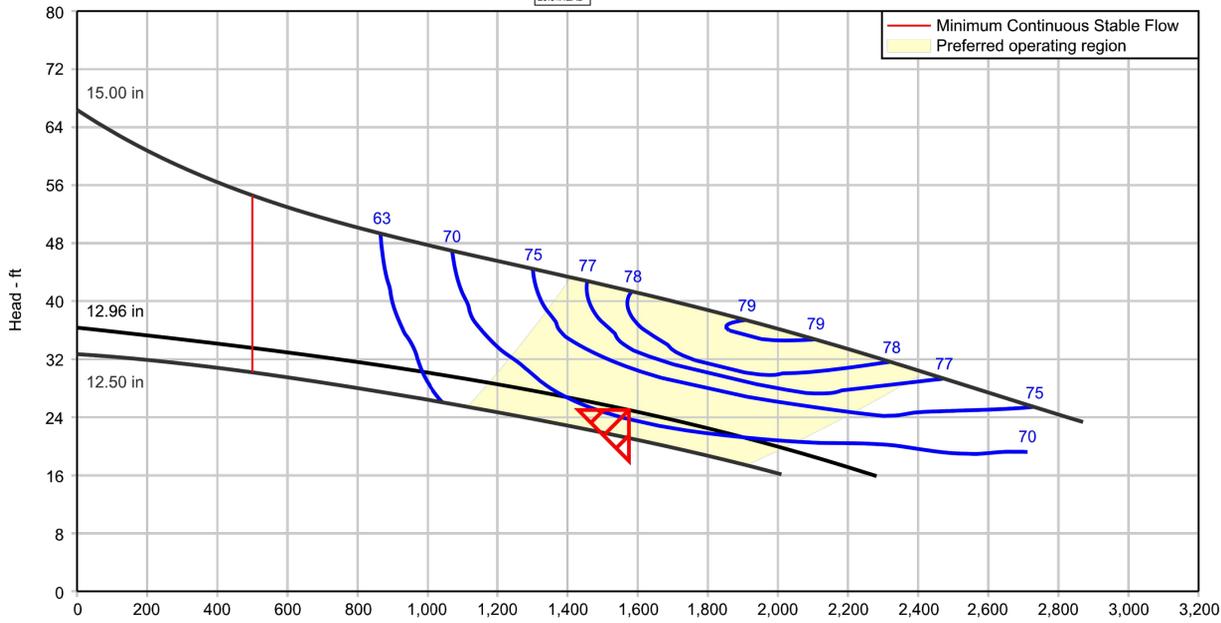
ACCESSORIES:
 1. HAZARDOUS LOCATION: PROVIDE WITH EXPLOSION PROOF MOTOR AND HOUSING.
 2. PROVIDE WITH FLAME PROOF JOINTS.

- NOTES:
- ALL CONCRETE ITEMS, INCLUDING SUMPS, SUMP PADS, ANNULAR CONCRETE TOPS, VALVE BOXES, VALVE BOX PADS SHALL BE AS SPECIFIED BY CIVIL/STRUCTURAL DRAWINGS/SPECIFICATION.
 - COMPLETE LIFT PUMP ASSEMBLIES, INCLUDING PUMPS, SEALING FLANGES, BASE PLATE ELBOWS, SLIDE RAILS, LIFTING CHAINS, FLOAT SWITCHES, MOTOR STARTERS, CONTROLS, DISCONNECT SWITCHES, BASIN AND VALVE BOX COVER PLATES SHALL BE FURNISHED AND INSTALLED UNDER SECTION 2-16 WORK.
 - PIPE CONNECTIONS FOR ALL PIPES AT BASINS AND VALVE BOXES SHALL BE SEALED WITH APPROPRIATE SIZE OF TELLEBORG KORIN SEAL CONNECTORS WITH PRESET TORQUE LIMITERS.
 - CONTROL PANEL SHALL BE SUPPORTED FROM METAL STAND CONSISTING OF HOT DIPPED GALVANIZED FORMED 1 5/8" X 1 5/8" 12GA. CHANNELS, UNISTRUT PIPE OR APPROVED EQUAL. VERTICAL CHANNELS SHALL BE ATTACHED TO TOP OF CONCRETE BASIN WITH UNISTRUT PIPE POST BASES. EACH POST BASE SHALL BE ANCHORED TO CONCRETE WITH FOUR 3/8" DIA. CORROSION RESISTANT ANCHOR BOLTS. HORIZONTAL AND VERTICAL MEMBERS SHALL BE CONNECT TOGETHER WITH HOT DIPPED GALVANIZED BOLTS, CHANNEL NUTS AND BRACKETS. PROVIDE PLASTIC END CAPS FOR CHANNELS AS REQUIRED FOR PERSONNEL PROTECTION.
 - PRECAST MANHOLE PER ASTM C478.
 - REINFORCING IN ALLS TO BE OF CIRCUMFERENTIAL REINFORCING 1/4" DIA. IN VERTICAL FOOT.
 - PROVIDE STEEL REINFORCED POLYPROPYLENE MANHOLE STEPS AT 16" O.C.
 - 4 FOOT DIAMETER VALVE CHAMBER TO BE OF SIMILAR FLAT SLAB CONSTRUCTION PER ASTM C478. PROVIDE 24" X 24" ALUMINUM HATCH, "BILCO" MODEL No. J 1A1 H2, OR APPROVED EQUAL WITH LOCKING DEVICE AND STAINLESS STEEL HARDWARE.
 - HATCH FOR SUMP BASIN SHALL BE SIMILAR, BUT WITH LOCKABLE DOUBLE LEAF COVER.
 - EACH CONTROL PANEL SHALL CONTAIN 46 TO 120 VOLT TRANSFORMER TO PROVIDE POWER FOR A 120V/1PH/60HZ 2 AMP CONVENIENCE RECEPTACLE. RECEPTACLE TO BE GFCI TYPE AND MOUNTED IN WEATHER PROOF BOX ON OUTSIDE OF CONTROL PANEL.
 - CONTROLS FOR SYSTEM SHALL BE ARRANGED SO THAT ONLY ONE PUMP OPERATES AT ONE TIME. SECOND PUMP SHALL BE ACTIVATED ONLY WHEN FIRST PUMP FAILS. PUMPS SHALL ALTERNATE EACH PUMPING CYCLE, PROVIDED BOTH PUMPS ARE OPERABLE.
 - REFER TO SPECIFICATION SECTION 22 14 29 FOR PUMP AND APPURTENANCES.

PUMP 15C

VERTICAL LIFT: 12'
 FRICTION LOSS: 1.125'
 SAFETY FACTOR: 1.15

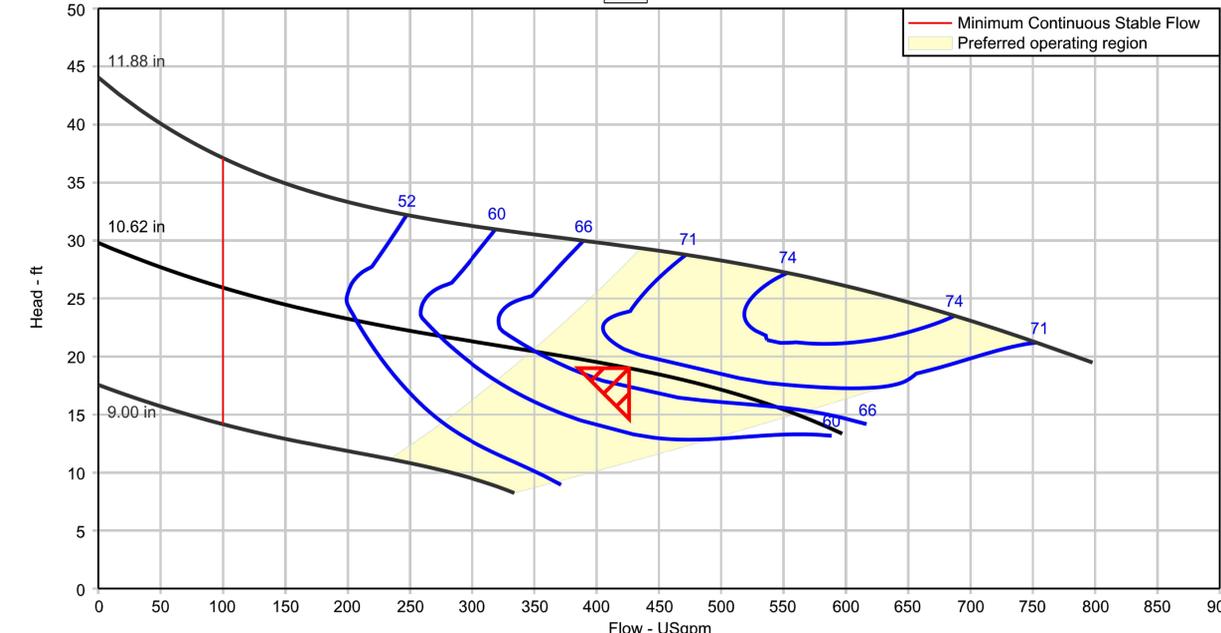
25.5 HEAD



PUMP 32

VERTICAL LIFT: 12'
 FRICTION LOSS: 4.5'
 SAFETY FACTOR: 1.15

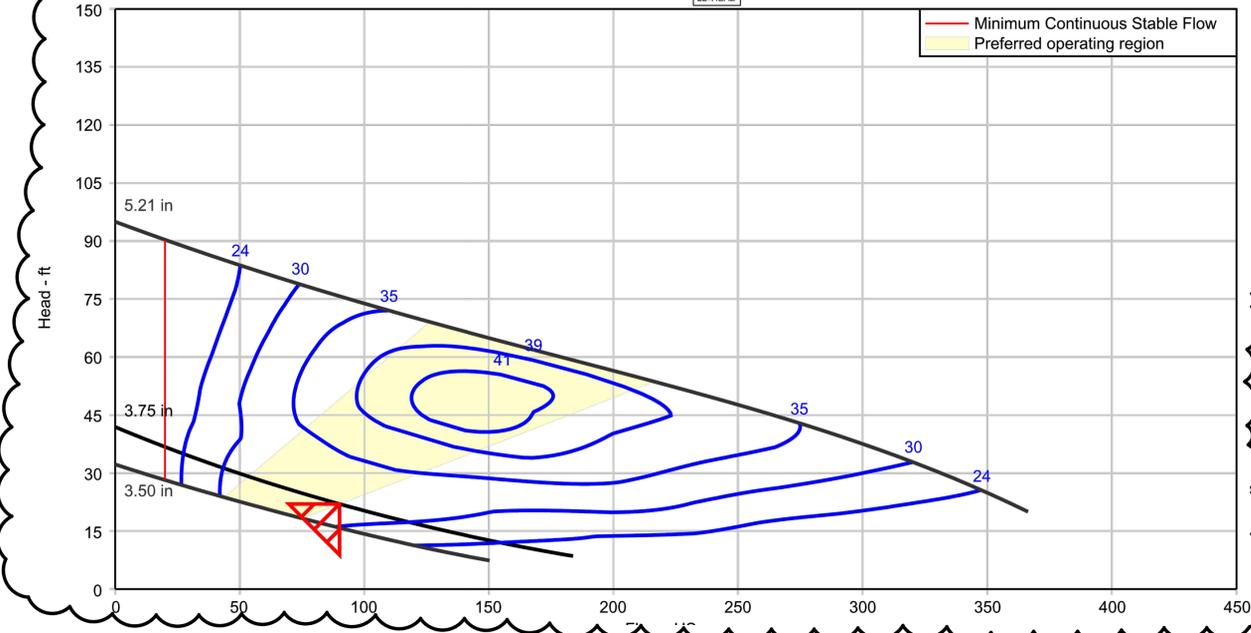
19 HEAD



PUMP 46

VERTICAL LIFT: 12'
 FRICTION LOSS: 7.1'
 SAFETY FACTOR: 1.15

22 HEAD



REV	DATE	ISSUED FOR
1	8/26/14	DOCUMENT RELEASE 16
2	5/3/14	DOCUMENT RELEASE 11
3	5/29/14	FINAL CIVIL REVIEW
4	4/24/14	BUILDING PERMITS
5	4/24/14	FINAL ENGINEERING REVIEW
6	4/15/14	WAYNE COUNTY STORMWATER PERMIT
7	4/9/14	FINAL OWNER REVIEW

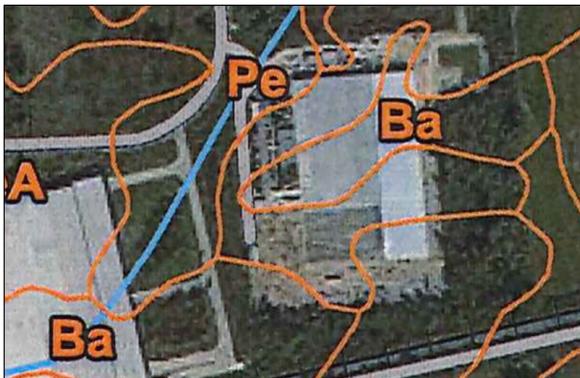
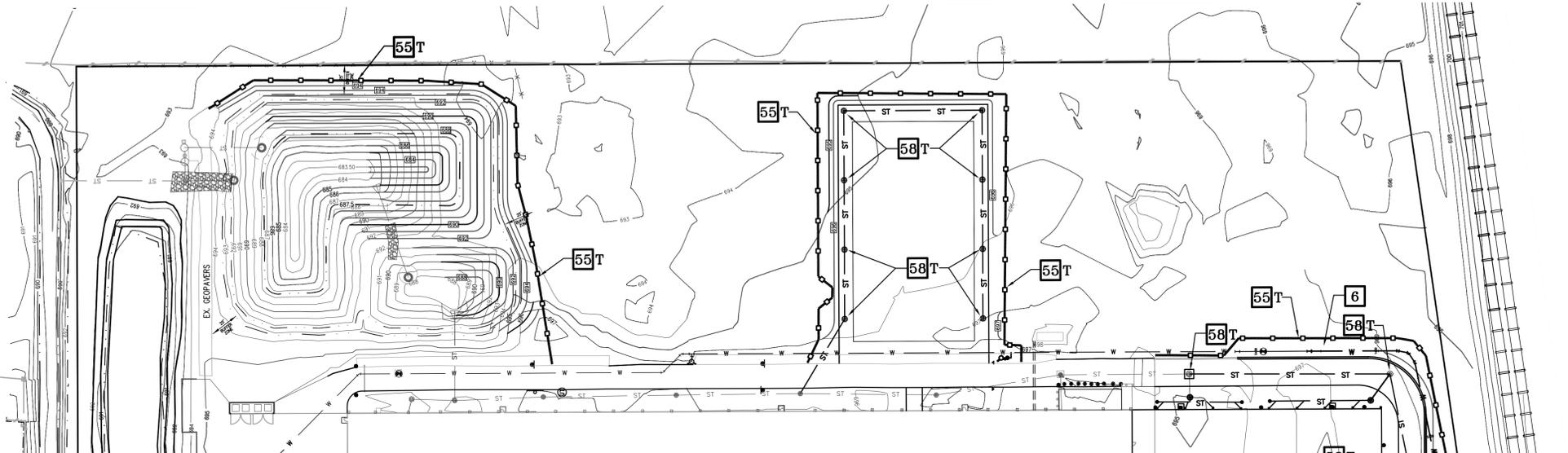
PROJECT	1374-3-11
PROJECT MANAGER	M. DURAND
DESIGNED BY	D. PAMULA
DRAWN BY	D. CALLO
QUALITY CHECK	
SHEET TITLE	

CIVIL STORM WATER LIFT STATIONS

CS1-00-12
 SHEET NUMBER

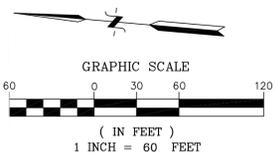
SOIL EROSION CONTROL LEGEND

6	SEEDING WITH MULCH AND/OR MATING	FACILITATES ESTABLISHMENT OF VEGETATIVE COVER EFFECTIVE FOR DRAINAGES WITH LOW VELOCITY EASY TO PLACE IN SMALL QUANTITIES BY EXPERIENCED PERSONNEL SLOVA MULCH PREFERRED SPEC. #10
55	SEDIMENT SILT FENCE	USES GEOTEXTILE AND POSTS OR PALES MAY BE CONSTRUCTED OR PREPARED EASY TO CONSTRUCT AND LOCATE AS NECESSARY
58	INLET SEDIMENT FILTER	USES PREPARED GEOTEXTILE SACKS FILTERS SEDIMENT FROM RUNOFF AT GROUND INLET EASY TO INSTALL AND MAINTAIN
59	INLET FABRIC DROP	PREVENTS SEDIMENT FROM ENTERING STORM SYSTEM AT STRUCTURES USES GEOTEXTILE FABRIC AND POSTS OR PALES SILT FENCE CAN BE USED

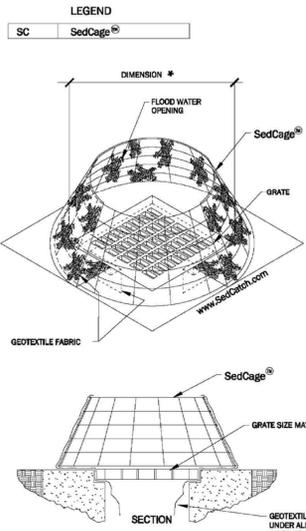


Map Unit Legend

Wayne County Area, Michigan (M102)			
Map Unit Symbol	Map Unit Name	Acres in ACI	Percent of ACI
Ba	Belleville loamy fine sand	58.8	5.1%
BaA	Blount-Pewamo loams, 0 to 2 percent slopes	64.2	5.5%
BIA	Blount loam, Erie-Huron Lake Plain, 0 to 2 percent slopes	57.6	5.0%
Co	Corunna fine sandy loam	22.2	1.9%
GF	Gifford sandy loam	18.1	1.6%
Gr	Granby loamy fine sand	16.9	1.5%
MaA	Metamore sandy loam, 0 to 3 percent slopes	178.9	15.2%
OwB	Owosso-Morley complex, 2 to 6 percent slopes	8.5	0.6%
Pe	Pewamo loam	280.3	25.0%
SeA	Selfridge loamy sand, 0 to 3 percent slopes	42.1	3.6%
SpB	Spirinks loamy sand, 0 to 6 percent slopes	42.1	3.6%
TIA	Tedrow loamy fine sand, loamy substratum, 0 to 2 percent slopes	35.8	3.1%
THA	Therford loamy sand, 0 to 2 percent slopes	216.8	18.7%
WdA	Wascepi sandy loam, 0 to 4 percent slopes	112.7	9.7%
Totals for Area of Interest		1,162.1	100.0%



SedCatch® SedCage® - Yard Inlet Protection



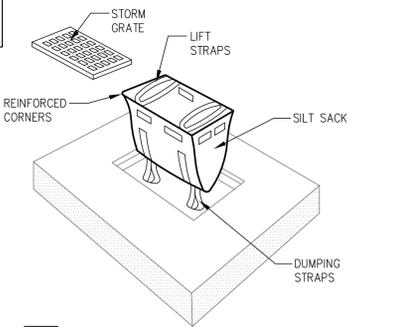
SIZING INSTRUCTIONS:
MEASURE THE DIAGONAL DIMENSION OF THE GRATE. SELECT A CAGE THAT IS AT LEAST 1" LARGER.

COMPATIBLE GRATES:
A SedCage® IS COMPATIBLE WITH ALL GRATES IN WHICH THE EDGES OF THE GRATE ARE SUPPORTED BY A LEGGE.

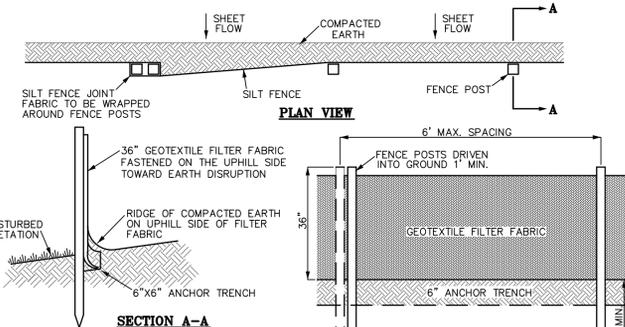
SIZES:
32" SedCage®
FITS SQUARE GRATES FROM 12" X 12" THROUGH 22" X 22"
FITS ROUND GRATES FROM 8" DIA. THROUGH 24" DIA.
FITS RECTANGULAR GRATES WITH A DIAGONAL BETWEEN 17" AND 31" (2 +2 +2)
42" SedCage®
FITS SQUARE GRATES FROM 18" X 18" THROUGH 26" X 26"
FITS ROUND GRATES FROM 12" DIA. THROUGH 30" DIA.
FITS RECTANGULAR GRATES WITH A DIAGONAL BETWEEN 28" AND 41" (2 +2 +2)
54" SedCage®
FITS SQUARE GRATES FROM 24" X 24" THROUGH 36" X 36"
FITS ROUND GRATES FROM 24" DIA. THROUGH 40" DIA.
FITS RECTANGULAR GRATES WITH A DIAGONAL BETWEEN 32" AND 53" (2 +2 +2)
62" SedCage®
FITS SQUARE GRATES FROM 27" X 27" THROUGH 42" X 42"
FITS ROUND GRATES FROM 28" DIA. THROUGH 48" DIA.
FITS RECTANGULAR GRATES WITH A DIAGONAL BETWEEN 44" AND 61" (2 +2 +2)
CUSTOM SIZES AVAILABLE

FLOOD WATER CLEAR OPENING:
32" SedCage 230 sq. in.
42" SedCage 515 sq. in.
54" SedCage 1075 sq. in.
62" SedCage 1320 sq. in.

GEOTEXTILE TUCKED UNDER ALL FOUR SIDES OF GRATE.



58 INLET SEDIMENT FILTER
NOT TO SCALE

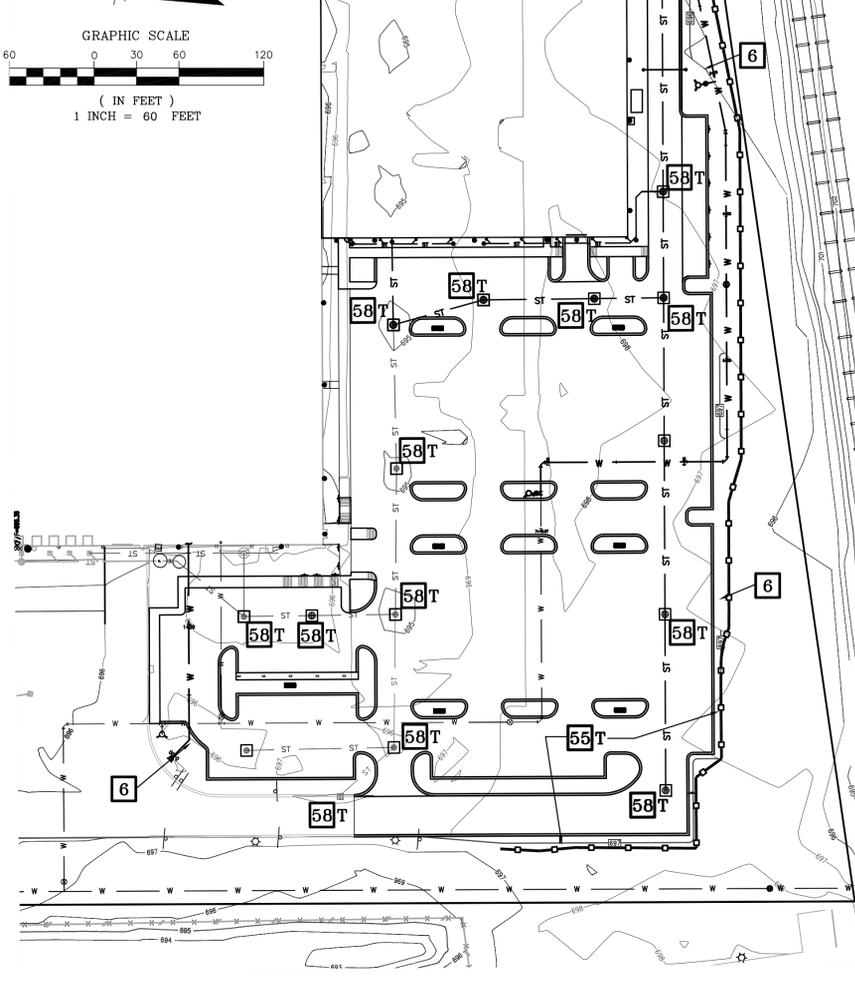


55 SILT FENCE
NOT TO SCALE

NOTES:
1. REPAIR AND REPLACE SILT FENCE AS NEEDED, INCIDENTALLY.
2. FIELD LOCATE SILT FENCE TO FOLLOW CONSTANT CONTOUR ELEVATIONS.
3. OVERLAP FENCES AT JOINTS.
4. INSTALL FILTER BERM AT LOW POINTS WHERE INDICATED ON PLANS.

US PATENT D 620,999, OTHER PATENTS PENDING

SedCatch® Environmental Products
www.SedCatch.com



AREA OF DISTURBANCE = 6.42 AC.

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LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

DESIGN/WMP	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: L.F.						
CHECK: WMP						



SOIL EROSION CONTROL PLAN & DETAILS

CLIENT:
CONSTELLIUM
6331 SCHOONER DRIVE
VAN BUREN TWP, MI. 48111

SCALE: 1"=60'
PROJECT No.: 9173300
DWG NAME: 3300-ER1
ISSUED: APRIL 11, 2018

ER1

START DAY	END DAY	SOIL EROSION CONTROL SEQUENCE OF CONSTRUCTION
3/27/18	4/1/18	1. STONE TRACKING PAD ATOP GEOTEXTILE LINER (MUD MAT)
3/27/18	4/4/18	2. INSTALL SILT FENCING AND PROTECTIVE FENCING
4/5/18	4/18/18	3. STRIP AND STOCKPILE TOPSOIL
4/19/18	5/16/18	4. GRADE AND BALANCE SITE. STABILIZE DITCHES, SWALES, COMMON AREAS AND SLOPES PER PLAN WITHIN 5 DAYS OF GRADE.
4/19/18	5/2/18	5. EXCAVATE DETENTION BASIN, INSTALL OUTLET STRUCTURE, STABILIZE BASIN BEFORE PAVING IS STARTED.
5/5/18	5/18/18	6. INSTALL UNDERGROUND UTILITIES
5/18/18	5/21/18	7. PLACE INLET FILTERS
6/1/18	7/3/18	8. INSTALL PAVEMENT COMPLETE
7/11/18	8/21/18	9. INSTALL ALL PUBLIC UTILITIES COMPLETE (ELEC, GAS, TELE, CABLE)
6/15/18	8/4/18	10. ESTABLISH VEGETATION FOR ALL DISTURBED AREAS AND ROAD R.O.W.'S
9/15/18	9/22/18	11. CLEAN OUT STORM SEWER SYSTEM
9/15/18	9/22/18	12. CLEAN OUT AND RESTORE SEDIMENT FOREBAY AND DETENTION BASIN TO DESIGN SPECIFICATIONS
10/4/18	10/11/18	13. REMOVE SILT FENCE AND CATCH BASIN FILTERS FOLLOWING W.C.D.O.E. APPROVAL. (CALL FOR FINAL INSPECTION)

STREET CLEANING SCHEDULE							
	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
SCRAPE STREETS		X	X	X	X	X	X
SWEEP STREETS				X			



Map Unit Legend

Wayne County Area, Michigan (MI602)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ba	Belleville loamy fine sand	58.8	5.1%
BcA	Blount-Pewamo loams, 0 to 2 percent slopes	64.2	5.5%
BfA	Blount loam, Erie-Huron Lake Plain, 0 to 2 percent slopes	57.6	5.0%
Co	Corunna fine sandy loam	22.2	1.9%
Gf	Gilford sandy loam	19.1	1.6%
Gr	Granby loamy fine sand	16.9	1.5%
MeA	Metamora sandy loam, 0 to 3 percent slopes	176.9	15.2%
OwB	Owosso-Morley complex, 2 to 6 percent slopes	6.5	0.6%
Pe	Pewamo loam	290.3	25.0%
SeA	Selridge loamy sand, 0 to 3 percent slopes	42.1	3.6%
SpB	Spinks loamy sand, 0 to 6 percent slopes	42.1	3.6%
TfA	Tedrow loamy fine sand, loamy substratum, 0 to 2 percent slopes	35.8	3.1%
ThA	Thetford loamy sand, 0 to 2 percent slopes	216.8	18.7%
WdA	Wasopi sandy loam, 0 to 4 percent slopes	112.7	9.7%
Totals for Area of Interest		1,162.1	100.0%

SOIL EROSION CONTROL AND CONSTRUCTION SEQUENCE:

- Obtain all necessary Soil Erosion and Sedimentation Control (SESC) related permits from the appropriate Local, County and/or State Agencies. Refer to the General Notes on the project plans for additional requirements.
- Prior to commencement of any earth disruption, install silt fence (except where existing pavement and/or buildings interfere), mud tracking control device(s) and inlet sediment filter(s) at existing storm sewer catch basin(s) in accordance with the Soil Erosion and Sedimentation Control Plan.
- Routinely inspect all Soil Erosion Control Measures in accordance with the Project Plans until all SESC related permits are closed. Maintain all Soil Erosion Control Measures as necessary in accordance with the Project Plans and as directed by the Engineer and/or Permitting Agency. Scrape streets and access drives daily. Sweep streets and access drives a minimum of once a week, additional as needed.
- Strip and stockpile topsoil. Stabilize topsoil stockpile per Project Plans.
- Perform mass grading and land balancing. Stabilize ditches, swales, slopes and common areas per Project Plans within 5 days of finish grade.
- Excavate detention basin. Install approved outlet control system per Project Plans. Finish grade detention basin. Stabilize detention basin area per Project Plans within 5 days of finish grade. Install silt fence around top of detention basin immediately following stabilization work.
- Install sanitary sewer, water main, storm sewer and underground public utility conduit. Install storm sewer inlet filters immediately following construction of each inlet structure.
- Construct building.
- Install light pole bases and site electrical.
- Construct driveways, sidewalks and parking areas. All storm sewer inlet filters that are removed to allow for curb and/or pavement construction shall be reinstalled or replaced within 24 hours of curb and/or pavement construction surrounding the inlet.
- Backfill curb and sidewalks. Finish grade all remaining disturbed areas.
- Place topsoil, finish grade and establish vegetation within road right of way and all remaining disturbed areas outside of paved areas in accordance with the Project Plans.
- Install public utilities per Project Plans.
- Install landscaping and traffic control signage in accordance with the Project Plans.
- Perform final site restoration including sweeping of all paved areas, clean and remove sediment from all storm structures, remove sediment from forebay and detention basin and restore to design specifications, remove all construction debris and excess construction materials and perform site clean up.
- Following establishment of sufficient vegetative ground cover and receipt of approval from the Permitting Agency, remove all temporary Soil Erosion Control Measures, including silt fence and storm structure inlet filters, clean all storm sewer structures and repair all permanent Soil Erosion Control Measures as necessary.

NOTES:

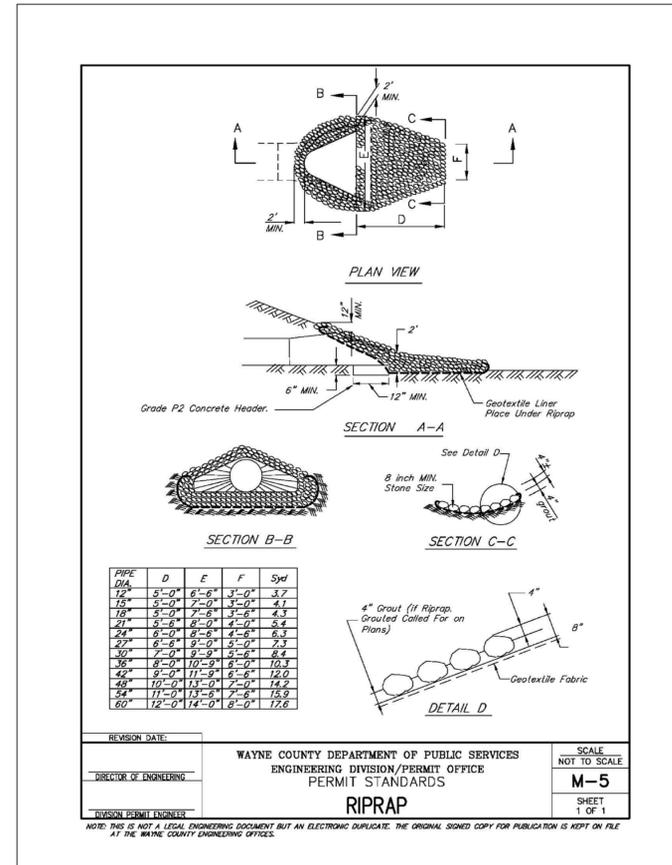
- Notify Wayne County Soil Erosion Office **48 hours** before work is to begin. (734) 326-3936
- Project of 5 acres or more may require an N.P.D.E.S. Stormwater Permit. Contact MDEQ, Surface Water Quality Division at (734) 953-1470.
- You **must** provide this Office with any of the following item(s) prior to obtaining a soil erosion permit and receiving the stamped approved plans (if any of the following conditions apply to your project):
 - MDEQ permit for any work impacting State-regulated wetlands, lakes, streams, or floodplains.
 - Wayne County Drain Permit for earthwork within a County Drain easement.
 - MDEQ Permit for any stream/drain crossing and/or drain relocation.
 - Wayne County Storm Water Construction Approval (if applicable). (Contact Wayne County Department of Public Service Permit Office at 33809 Michigan Ave. (at Howe Rd) in the City of Wayne with your plans. Telephone # 734-595-6504
 - Any fees still owed and/or the required Performance Bond.

SOIL EROSION AND SEDIMENTATION CONTROL NOTES:

- The Soil Erosion and Sedimentation Control Specifications of the appropriate Local, County and/or State Agencies are a part of this work. Refer to the General Notes on the Project Plans for additional requirements.
- The Soil Erosion and Sedimentation Control (SESC) Permit Holder shall be responsible for compliance with the SESC Permit requirements for the duration of the project and until receipt of final approval from the Permitting Agency. For any site with an earth disturbance area of 1 acre or greater, the SESC Permit Holder shall retain a Certified Storm Water Operator in accordance with the SESC Permit requirements. The Certified Storm Water Operator shall perform routine inspections of the site and the SESC measures and file inspection reports in accordance with the SESC permit requirements. For any site with an earth disturbance area of 5 acres or greater, the SESC Permit Holder shall file a National Pollutant Discharge Elimination System (NPDES) Notice of Coverage Form with the State DEQ prior to any earth disruption.
- The Contractor shall install the appropriate Soil Erosion Control Measures in accordance with the Project Plans prior to massive earth disruption, including but not limited to: silt fence, mud tracking control mats and sediment filters on existing storm sewer structures. Demolition work may be necessary prior to installation of some soil erosion control measures. In such cases, postpone installation of affected soil erosion control measures until immediately following demolition work. Refer to the Project Plans and the Soil Erosion Control and Construction Sequence for additional requirements.
- The Contractor shall schedule work so as to minimize the period of time that an area is exposed and disturbed. The Contractor shall observe the grading limits and limits of disturbance in accordance with the Project Plans. The Contractor shall maintain an undisturbed vegetative buffer around the work when shown on the Project Plans.
- The Contractor shall install and maintain Soil Erosion Control Measures in accordance with the Project Plans during the appropriate phases of construction. The Project Plans show the minimum requirements for Soil Erosion Control Measures. The Contractor shall install additional Soil Erosion Control Measures as necessary due to site conditions and as directed by the Permitting Agency and/or Engineer. The Contractor shall perform routine inspection and maintenance of all Soil Erosion Control Measures to ensure compliance with the permit requirements and proper operation of the Soil Erosion Control Measures.
- The Contractor shall strip and stockpile topsoil from all areas of proposed disturbance. Topsoil stockpiles shall be located in accordance with the Project Plans. Topsoil stockpiles shall be stabilized with vegetative growth (or matted with straw during the non-growing season) to prevent wind and water erosion. A temporary diversion berm and/or silt fence shall encompass all earthen material stockpiles, including but not limited to topsoil, sand and gravel.
- The Contractor shall install Soil Erosion Control Measures associated with the proposed storm sewer system during storm sewer construction. Inlet structure filters shall be installed immediately following completion of each storm inlet structure. Riprap shall be installed immediately following the installation of each flared end section with the following exception: Storm drain outlets that do NOT empty into a Retention, Detention or Sedimentation Basin shall have a temporary 5' wide x 10' long x 3' deep sump installed at the termination of the storm sewer. Upon completion of the stabilization work, the sump area shall be filled and riprap shall be installed in accordance with the Project Plans.
- The Contractor shall install filter stone around the storm basin control structure(s) in accordance with the Project Plans immediately following installation of the control structure(s). The filter stone shall be monitored for sediment build up. The filter stone may need to be cleaned and/or replaced as site conditions require and as directed by the Permitting Agency and/or the Engineer.
- All disturbed areas outside of paved areas shall be restored within 5 days of finish grading. Proposed vegetative areas shall be restored with a minimum of 3-inches of topsoil and hydroseed or seed and mulch/matting. See project plans for specific locations and requirements. During the non-growing season, temporary stabilization shall be provided using straw matting or as directed by the Permitting Agency and/or the Engineer.
- Following complete site restoration and stabilization; sediment shall be removed from all storm sewer structures, paved areas and storm basins. The SESC Permit Holder shall contact the Permitting Agency to request closure of the SESC Permit. For any site with an earth disturbance area of 5 acres or greater, the SESC Permit Holder shall file a NPDES Notice of Termination Form with the State DEQ.

MAINTENANCE NOTES FOR SOIL EROSION CONTROL MEASURES:

- The Construction Site and all Soil Erosion Control Measures shall be inspected periodically in accordance with the appropriate local municipality/authority and the DEQ NPDES rules and regulations. At a MINIMUM, inspections shall be performed once a week and within 24 hours following a storm event resulting in 1" of rainfall or greater. Inspections shall be performed throughout the duration of the construction process and until the site is completely stabilized. Following construction, the owner (or its assignee) shall periodically inspect all permanent soil erosion control measures to ensure proper operation.
- BASIN PERFORATED STANDPIPES / CONTROL STRUCTURES:** Standpipes shall be inspected for soil accumulation, soil caking and mechanical failure/damage. The filter stone around the standpipe shall be removed and replaced each time it becomes clogged with sediment. All mechanical failure/damage shall be repaired immediately.
- CATCH BASINS:** Catch basins shall be inspected for accumulation of solids and sediment. Solids and sediment shall be removed from the catch basins by vacuum or adductor cleaning. Cleaning should be performed before the catch basin sumps are half full.
- CULVERT SEDIMENT TRAPS:** Culvert sediment traps shall be inspected for sediment accumulation, clogging and damage. Clean the sediment trap each time it becomes clogged with sediment. Reinstall or replace dislocated traps immediately. Replace damaged traps immediately.
- DETENTION BASIN (WET BOTTOM):** Wet bottom detention basins shall be inspected to ensure erosion is not occurring along the inlet locations, banks and/or bottom of the basin and for sediment and/or algae accumulation. Regular maintenance of the basin includes routine moving of the buffer/filter strip and side slopes and removal of litter and debris accumulation. Address vegetation and/or erosion concerns as soon as weather permits. Remove sediment from basin every 5 to 10 years or sooner if sediment accumulation adversely affects the operation of the basin. Sediment that is removed shall be disposed of offsite or at an upland area and stabilized so that it does not re-enter the drainage course. Excessive algae shall be removed as necessary to prevent odors and to maintain nutrient removal capacity.
- MUD TRACKING CONTROL DEVICE / CONSTRUCTION ACCESS:** Mud tracking control devices shall be inspected for significant mud accumulation and to ensure the access is not eroding into public rights of way or drainage features. Add additional layers of stone or remove and replace stone each time the stone becomes covered with mud. All sediment dropped or eroded onto public rights of way shall be removed immediately. Sweeping of the public rights of way and/or paved access route shall be performed as necessary to maintain the access route, free of sediment and debris.
- RIPRAP:** Inspect riprap immediately following the first rainfall event following installation of the riprap. Continue to perform inspections of the riprap at each periodic site inspection. Riprap shall be inspected to ensure erosion is not occurring within and/or around the riprap. The discharge point shall be inspected to ensure that concentrated flows are not causing erosion downstream. Displaced riprap shall be removed from downstream locations and the riprap beds shall be repaired or replaced. Significant sediment buildup shall be removed from riprap beds. Repair or replace failing or displaced riprap immediately. Address vegetation and/or erosion concerns as soon as weather permits.
- SEDIMENTATION BASIN:** Sedimentation basins shall be inspected to ensure erosion is not occurring along the inlet locations, banks and/or bottom of the basin and for piping, seepage, sediment accumulation and/or other mechanical damage. Regular maintenance of the basin includes routine moving of the buffer/filter strip, side slopes and basin floor and removal of litter and debris accumulation. Address vegetation and/or erosion concerns as soon as weather permits. Sediment shall be removed before it accumulates to 50% of the design depth of the basin. Sediment that is removed shall be disposed of offsite or at an upland area and stabilized so that it does not re-enter the drainage course.
- SEEDING:** Newly seeded areas shall be inspected until substantial vegetative growth is obtained. Seeded areas shall be inspected to ensure erosion is not occurring in the seeded area and vegetative growth is promoted. Eroded areas shall be finish graded as necessary to remove erosion channels or gulleys and new seed placed as soon as weather permits.
- SILT FENCE:** Silt fencing shall be inspected for soil accumulation/clogging, undercutting, overtopping and sagging. Soil accumulation shall be removed from the face of the silt fence each time it reaches half the height of the fence. Removed sediment shall be disposed of in a stable upland site or added to a spoils stockpile. When undercutting occurs, grade out areas of concentrated flow upstream of the silt fence to remove channels and/or gulleys and repair or replace silt fence ensuring proper trenching techniques are utilized. Silt fencing which sags, falls over or is not staked in shall be repaired or replaced immediately. Silt fencing fabric, which decomposes or becomes ineffective, shall be removed and replaced with new fabric immediately. Silt fencing shall be removed once vegetation is well established and the up-slope area is fully stabilized.
- SOD:** Newly sodded areas shall be inspected to ensure sod is maturing. Sod shall be inspected for failure, erosion or damage. Slipping or eroding sod on steep slopes shall be immediately repaired or replaced and staked in place. Damaged or failed sod shall be immediately replaced.
- SPILLWAYS:** Spillways shall be inspected to ensure that erosion is not occurring within and/or around the spillway. The discharge point shall be inspected to ensure that concentrated flows are not causing erosion downstream. Inspect the spillway for cracked concrete, uneven and/or excessive settling and proper function. Repair or replace failing spillways immediately. Address vegetation and/or erosion concerns as soon as weather permits.
- STOCKPILES:** Temporary and permanent topsoil and spoils stockpiles shall be seeded to promote vegetative growth. Stockpiles shall be inspected to ensure excessive erosion has not occurred. When runoff or wind erosion is evident, reduce the side slopes of the stockpile or stabilize the stockpile with pieces of staked sod laid perpendicular to the slope. When filter fencing is used around a stockpile, the fencing shall be inspected to ensure piping has not occurred under the fencing and to ensure the fencing has not collapsed due to soil slippage or excess by construction equipment. Repair or replace damaged fencing immediately. Berms at the base of stockpiles, which become damaged, shall be replaced.
- STORM STRUCTURE INLET FILTERS:** Inlet filters shall be inspected for sediment accumulation, clogging and damage. When stone is used in conjunction with inlet filter fabric, replace the stone each time it becomes clogged with sediment. Clean or replace the inlet filter fabric each time it becomes clogged with sediment. Reinstall or replace fallen filter fabrics immediately. Replace damaged filter fabrics immediately.



DESIGN: WMP	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: L.F.		04-11-18	REVISED PER REVIEW COMMENTS			
CHECK: WMP						



SOIL EROSION CONTROL NOTES & DETAILS

CLIENT: CONSTELLIUM	SCALE: NTS
6331 SCHOONER DRIVE VAN BUREN TWP, MI. 48111	PROJECT No.: 9173300
	DWG NAME: 3300-ER2
	ISSUED: APRIL 11, 2018

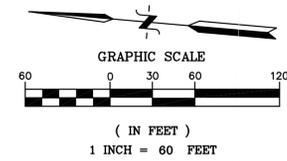
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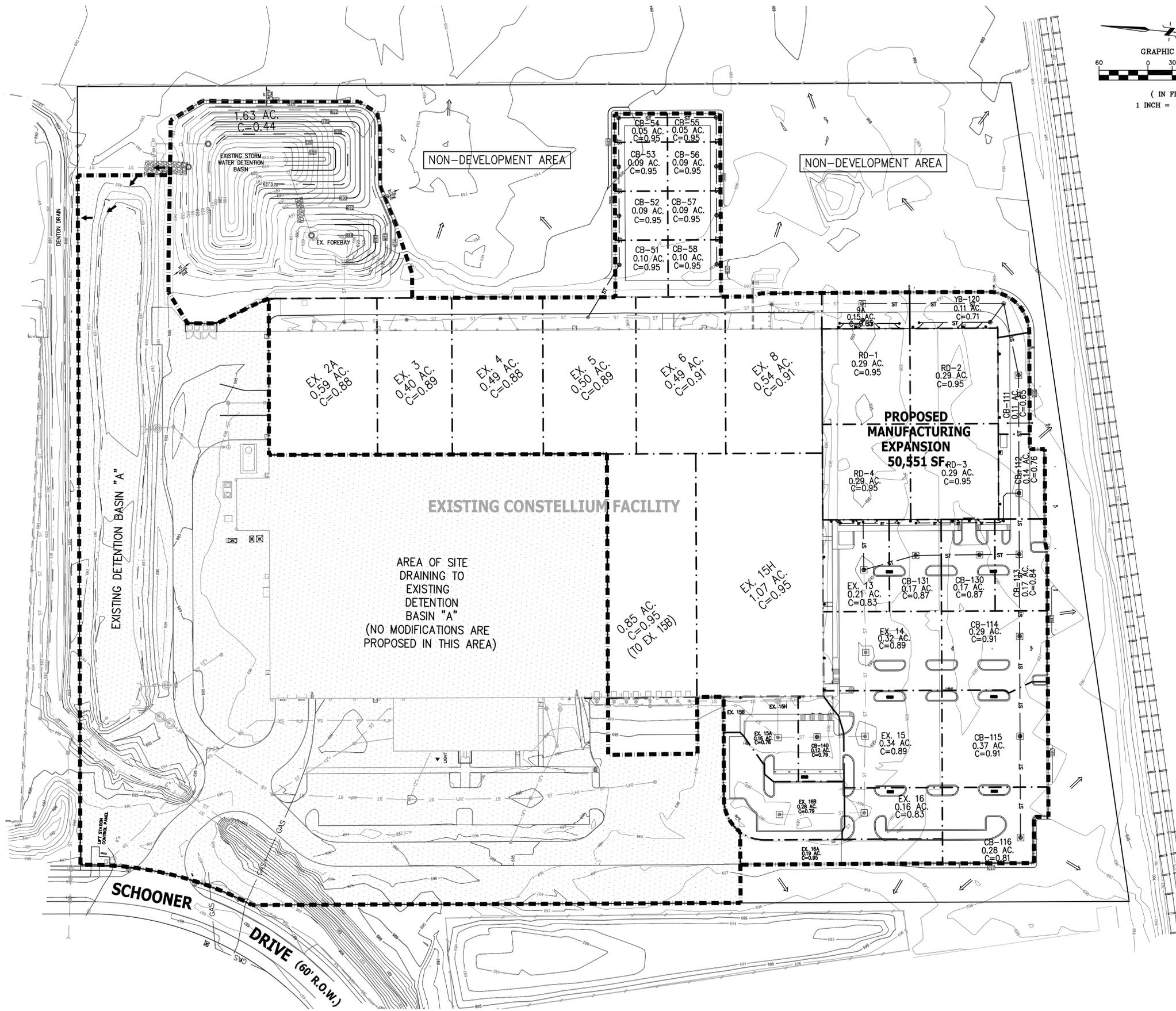
LEGEND

- DRAINAGE LIMITS
- WATERSHED LIMITS
- EXISTING DETENTION BASIN "A"
DRAINAGE AREA
- DRAINAGE DIRECTION FLOW ARROW
- ← 100 YEAR OVERFLOW ROUTE

PROPOSED RUNOFF COEFFICIENT CALCULATION

Structure	1.00 Pond	0.95 Pavement	0.95 Building	0.30 Lawn	0.25 Natural	(ACRES) Area	"C" Factor
2A		0.06	0.47	0.06		0.59	0.88
3		0.04	0.32	0.04		0.40	0.89
4		0.05	0.39	0.05		0.49	0.88
5		0.05	0.40	0.05		0.50	0.89
6		0.07	0.39	0.03		0.49	0.91
RD-8		0.09	0.42	0.03		0.54	0.91
9A		0.08		0.07		0.15	0.65
13		0.17		0.04		0.21	0.83
14		0.29		0.03		0.32	0.89
15		0.31		0.03		0.34	0.89
15A		0.14		0.06		0.16	0.94
15H			1.07			1.07	0.95
15B		0.10	0.75			0.85	0.95
16		0.13		0.03		0.16	0.83
16A		0.20		0.02		0.19	1.03
16B		0.19		0.06		0.28	0.71
51		0.10				0.10	0.95
52		0.09				0.09	0.95
53		0.09				0.09	0.95
54		0.05				0.05	0.95
55		0.05				0.05	0.95
56		0.09				0.09	0.95
57		0.09				0.09	0.95
58		0.10				0.10	0.95
111		0.06		0.05		0.11	0.65
112		0.10		0.04		0.14	0.76
113		0.14		0.03		0.17	0.84
114		0.27		0.02		0.29	0.91
115		0.35		0.02		0.37	0.91
116		0.22		0.06		0.28	0.81
140		0.09		0.03		0.12	0.79
120		0.07		0.04		0.11	0.71
130		0.15		0.02		0.17	0.87
131		0.15		0.02		0.17	0.87
RD-1			0.29			0.29	0.95
RD-2			0.29			0.29	0.95
RD-3			0.29			0.29	0.95
RD-4			0.29			0.29	0.95
Det Basin	0.32			1.31		1.63	0.44
					Overall:	12.12	0.83

Lawn Runoff Coefficients are for Hydrologic Soil Group "B", supported by geotechnical investigation conducted by Professional Service Industries, Inc. within the limits of the watershed.
Runoff Coefficients provided per the Wayne County Stormwater Standards Manual.



DESIGN: WMP	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: L.F.		03-01-18	REVISED PER WCDPS REVIEW
CHECK: WMP		04-11-18	REVISED PER REVIEW COMMENTS

REVISION #	DATE	REVISION-DESCRIPTION



WATERSHED PLAN

CLIENT:
CONSTELLIUM

6331 SCHOONER DRIVE
VAN BUREN TWP, MI. 48111

SCALE: 1"=60'
PROJECT No.: 9173300
DWG NAME: 3300-WS
ISSUED: APRIL 11, 2018



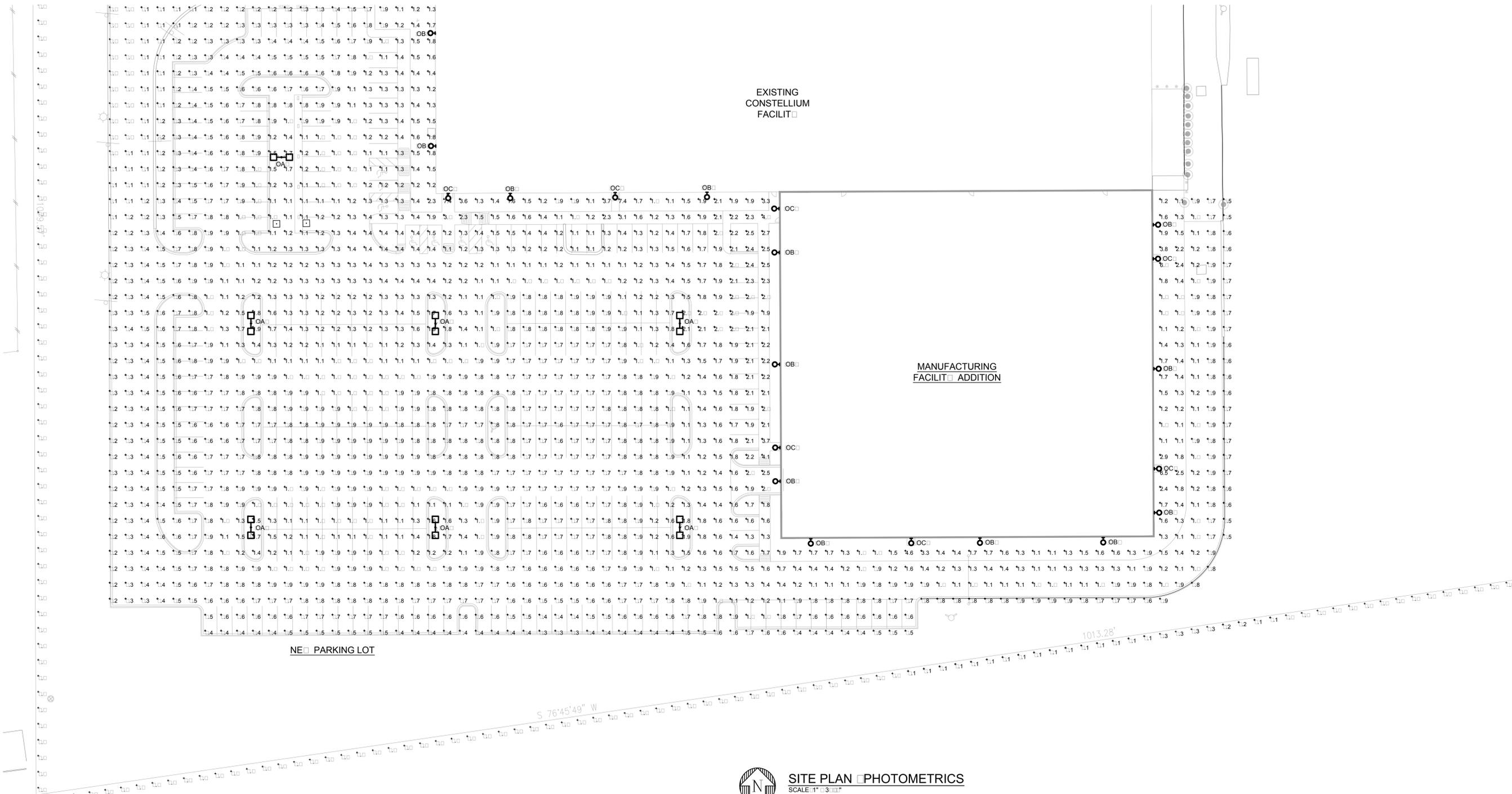
Symbol	Label	Quantity	Catalog Number	Description	Lamp	File	Lumens	LLF	atts
□	OA	7	DSX1 LED P2 4-K T3M MVOLT	DSX1 LED P2 4-K T3M MVOLT	LED	DSX1 LED P2 4-K T3M MVOLT.ies	Absolute	0.9	14
○	OB	13	DSX2 LED 3-C 7-4-K T3M MVOLT	DSX2 LED WITH 3 LIGHT ENGINES, 3 LED S, 71mA DRIVER, 4-K LED, T-PE 3 MEDIUM OPTIC	LED	DSX2 LED 3-C 7-4-K T3M MVOLT.ies	Absolute	0.9	71
□	OC	7	ST LED P1 4-K VF MVOLT	ST LED, Performance package 1, 4-K, visual comfort forward throw, MVOLT	LED	ST LED P1 4-K VF MVOLT.ies	Absolute	0.9	12

STATISTICS						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
PARKING LOTS AND DRIVEWAYS	+	1.0	7.4	0.0	N/A	N/A
PROPERTY LINE	+	0.0	0.3	0.0	N/A	N/A

- GENERAL NOTES:**
- T-PE OA FIXTURES SHALL BE POLE MOUNTED WITH LUMINAIRES AT 35' ABOVE FINISHED GRADE.
 - T-PE OB FIXTURES SHALL BE ALL MOUNTED AT 25' ABOVE FINISHED FLOOR.
 - T-PE OC FIXTURES SHALL BE ALL MOUNTED AT 9' ABOVE FINISHED FLOOR.

MEEC
mechanical electrical engineering consultants pc
1415 Goldsmith
Plymouth, MI 48170
734.454.5516
734.454.5517 (f)

JORDAN KOENIG
ENGINEER
No. 59789
11/22/17



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This drawing is diagrammatic and should be used to determine the design intent. The contractor shall field verify all work and shall notify the architect immediately of any discrepancies in the documents before proceeding. Failure to do so will result in the contractor taking full responsibility and liability for said discrepancies.

project

Constellium Automotive
6331 Schooner Drive
Van Buren Twp, MI 48111

client

Desine Inc.
2183 Pless Dr.
Brighton, MI 48114

sheet title

Site Plan Photometrics

MW drawn by
JJK checked by

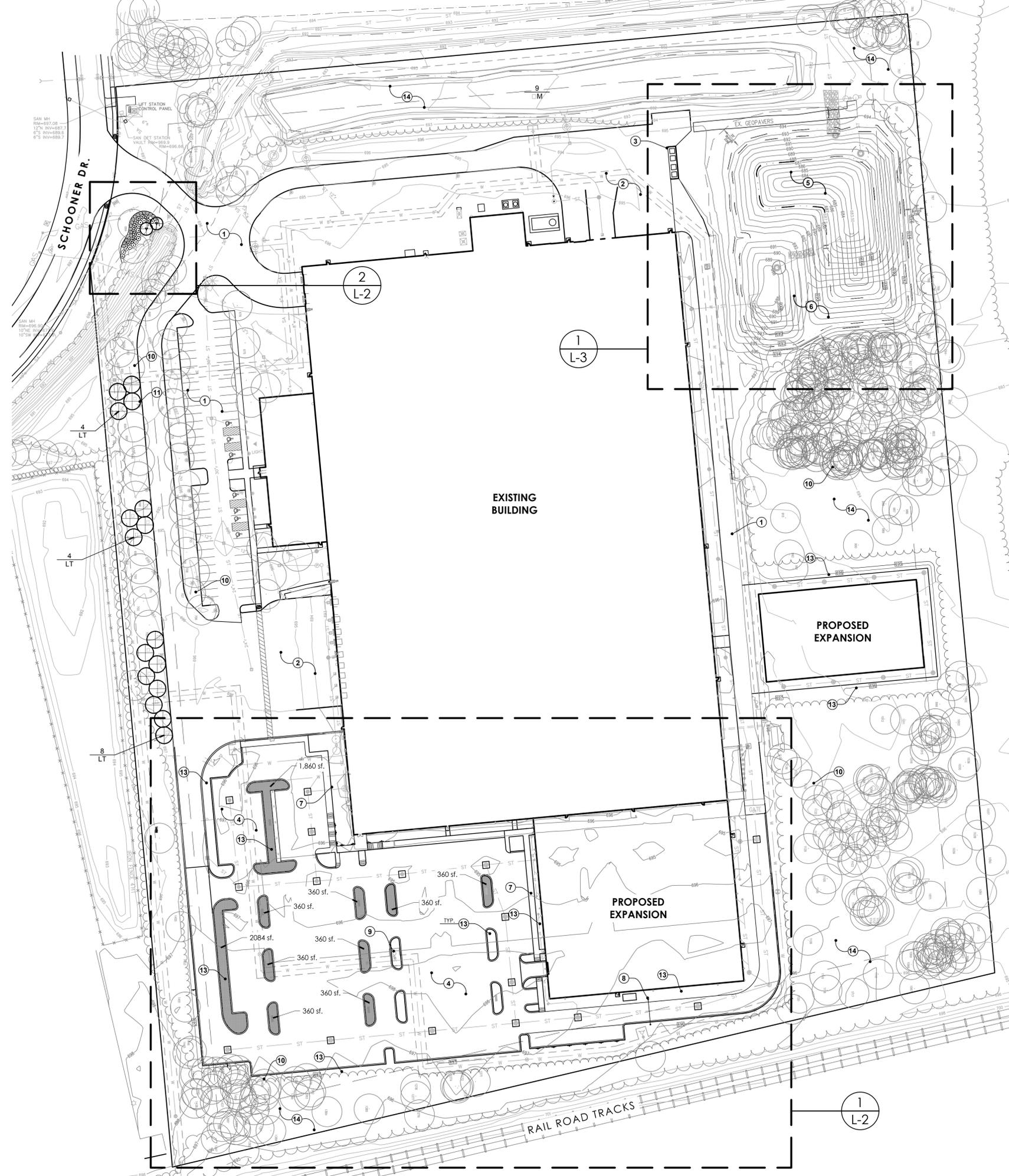
issued for date
SPA 11/22/2017

mec job no.
800-17-242

sheet no.
ES.1



Drawn: JG
Checked: JG
Date: 11.08.2017
Scale: 1" = 60'-0"



Note Key:

- ① EXISTING DRIVES AND PARKING LOT
- ② EXISTING LOADING DOCKS
- ③ EXISTING DUMPSTER ENCLOSURE
- ④ PROPOSED PARKING LOT EXPANSION, SEE CIVIL ENGINEERING DRAWINGS
- ⑤ EXISTING STORM WATER BASIN
- ⑥ PROPOSED STORM WATER BASIN EXPANSION, SEE CIVIL ENGINEERING DRAWINGS, SEE SHEET L-3 FOR ENLARGEMENT
- ⑦ PROPOSED CONCRETE SIDEWALK, TYPICAL
- ⑧ PROPOSED GATE
- ⑨ EXISTING UTILITIES, PROTECT AS REQUIRED DURING CONSTRUCTION
- ⑩ EXISTING TREES TO REMAIN, SEE CIVIL ENGINEERING DRAWINGS FOR TYPICAL TREE PROTECTION DETAIL
- ⑪ DECIDUOUS CANOPY TREE, SEE SHEET L-2 FOR PLANT SCHEDULE, SEE TYPICAL DETAIL SHEET L-3
- ⑫ EVERGREEN TREE, SEE SHEET L-2 FOR PLANT SCHEDULE, SEE TYPICAL DETAIL, SHEET L-3
- ⑬ SEEDED LAWN OVER MINIMUM 4" DEPTH TOPSOIL TO LIMITS OF DISTURBANCE
- ⑭ AREA TO REMAIN NATURAL

Maintenance Notes

LANDSCAPING REQUIRED BY THIS ORDINANCE SHALL BE MAINTAINED IN A HEALTHY, NEAT AND ORDERLY APPEARANCE, FREE FROM REFUSE AND DEBRIS. ALL UNHEALTHY AND DEAD PLANT MATERIAL SHALL BE REPLACED IMMEDIATELY, UNLESS THE SEASON IS NOT APPROPRIATE FOR PLANTING, IN WHICH CASE SUCH PLANT MATERIAL SHALL BE REPLACED AT THE BEGINNING OF THE NEXT PLANTING SEASON.

ALL LANDSCAPE AREAS SHALL BE IRRIGATED WITH AN AUTOMATIC UNDERGROUND SYSTEM.

Tree Planting Key

- P - REQUIRED VEHICULAR USE AREA TREE
- W - WOODLAND REPLACEMENT TREE
- F - FRONTAGE REQUIREMENT

Site Landscape Calculations - Proposed Expansion Only:

VEHICULAR SURFACE AREA LANDSCAPE:

Interior parking lot landscape shall account for a minimum of 5% all paved areas, be a minimum of 360 sf and contain a minimum of one tree
Total Vehicular surface area: **129,819 sf**
Total Interior Landscape Area Required: $129,819 \times 0.05 = 6,490$ SF.
Total Interior Area Provided: **6,824 SF**

Tree Planting:

1 Tree / 300 SF, of provided interior parking lot landscape area is required
Trees Required: $6,824 / 300 = 23$
Trees Provided: **23**

NOTE: See sheet L-2 for proposed tree plantings

WOODLAND REPLACEMENT REQUIREMENTS:

Minimum of (1) 2'-3" cal. Deciduous or 4'-6' ht. Evergreen tree is required to be planted for each protected tree 5" DBH or greater that is removed. See Civil Engineering drawings for Woodland Plan and removals.
Total Protected Trees Removed: 16

Total Replacement Trees Required: 16
Total Replacement Trees Provided: **16**

FRONTAGE LANDSCAPE REQUIREMENT:

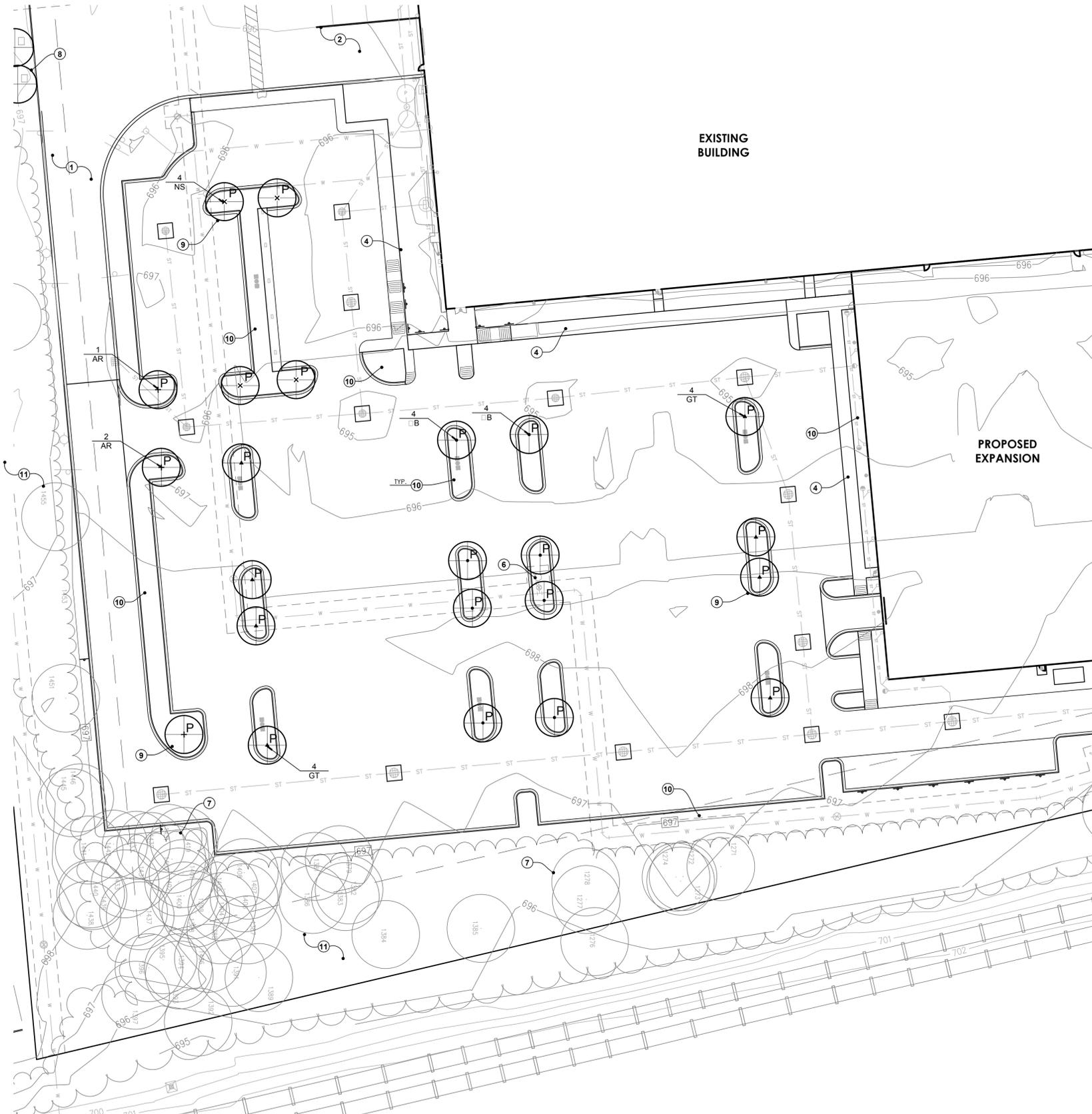
Minimum of 1 Deciduous or 1 Evergreen tree / 40 lf. adjacent to road R.O.W
Minimum of 1 Ornamental Tree / 100 lf.
Minimum of 8 Shrubs / 40 lf.
Total Road Frontage: 209.20 lf.

Deciduous or Evergreen Trees Required: $(209 / 40) = 5$
Deciduous or Evergreen Trees Provided: **All existing trees adjacent to Schooner Dr. are to remain**

Ornamental Trees Required: $(209 / 100) = 2$
Ornamental Trees Provided: **2**

Shrubs Required: $(209 / 40) \times 8 = 40$
Shrubs Provided: **42**





1
L-2
PARKING LOT EXPANSION ENLARGEMENT
SCALE: 1" = 30'-0"



EXISTING BUILDING

PROPOSED EXPANSION

2
L-2
FRONTAGE LANDSCAPE ENLARGEMENT
SCALE: 1" = 10'-0"



Note Key:

- ① EXISTING DRIVES AND PARKING LOT
- ② EXISTING LOADING DOCKS
- ③ PROPOSED PARKING LOT EXPANSION, SEE CIVIL ENGINEERING DRAWINGS
- ④ PROPOSED CONCRETE SIDEWALK, TYPICAL
- ⑤ EXISTING DRAINAGE AREA
- ⑥ EXISTING UTILITIES, PROTECT AS REQUIRED DURING CONSTRUCTION
- ⑦ EXISTING TREES TO REMAIN, SEE CIVIL ENGINEERING DRAWINGS FOR TYPICAL TREE PROTECTION DETAIL
- ⑧ PROPOSED WOODLAND REPLACEMENT TREE, SEE SHEET L-1
- ⑨ DECIDUOUS CANOPY TREE, SEE TYPICAL DETAIL SHEET L-3
- ⑩ SEEDED LAWN OVER MINIMUM 4" DEPTH TOPSOIL TO LIMITS OF DISTURBANCE, CROWN ALL PARKING LOT ISLANDS 6" TO CENTER
- ⑪ AREA TO REMAIN NATURAL

Tree Planting Key

- P - REQUIRED VEHICULAR USE AREA TREE
- W - WOODLAND REPLACEMENT TREE
- F - FRONTAGE REQUIREMENT

PLANT SCHEDULE

TREES							
QTY	SYM	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	ROOT	COMMENTS
3	AR	Acer r. 'Red Pointe'	Red Pointe Red Maple	3" cal.	as shown	B&B	Single straight trunk
2	CK	Cornus kousa 'Milkyway'	Milkyway Kousa Dogwood	2" cal.	as shown	B&B	Single straight trunk
8	GT	Gleditsia l. 'Skyline'	Skyline Honeylocust	3" cal.	as shown	B&B	Single straight trunk
16	LT	Liriodendron tulipifera	Tulip Tree	3" cal.	as shown	B&B	Single straight trunk
4	NS	Nyssa sylvatica	Black Tupelo	3" cal.	as shown	B&B	Single straight trunk
8	QB	Quercus bicolor	Swamp White Oak	3" cal.	as shown	B&B	Single straight trunk
SHRUBS							
10	HP	Hydrangea p. 'Little Lime'	Little Lime Hydrangea	30" ht.	as shown	cont.	Well rooted
18	SB	Spiraea x b. 'Anthony Waterer'	Anthony Waterer Spiraea	24" ht.	as shown	cont.	Well rooted
14	VD	Viburnum dentatum	Arrowwood Viburnum	36" ht.	as shown	B&B	Well rooted

NOT FOR CONSTRUCTION

SURVEY PROVIDED BY:
DESINE ENGINEERING, INC.
2183 Pless Drive
Brighton, MI 48114
810.227.9533

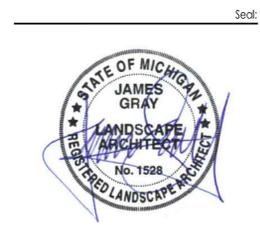
JOB NUMBER: 9173300
DATED: October 11, 2017



Issued For:
11.20.2017 Owner Review
11.28.2017 Preliminary Site Plan
04.06.2018 Revision Per Township

Project:
Constellium Automotive
6331 Schooner Drive
Van Buren Township, MI

Sheet Name:
Enlargement Plans



Drawn: JG
Checked: JG
Date: 11.08.2017
Scale: AS NOTED

Project Number:
17.028

Sheet Number:
L-2

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Note Key:

- 1 EXISTING DRIVES ALLES
- 2 EXISTING DUMPSTER ENCLOSURE
- 3 EXISTING STORM WATER BASIN
- 4 PROPOSED STORM WATER BASIN EXPANSION. SEE CIVIL ENGINEERING DRAWINGS
- 5 EXISTING TREES TO REMAIN. SEE CIVIL ENGINEERING DRAWINGS FOR TYPICAL TREE PROTECTION DETAIL
- 6 LIMITS OF 25' BUFFER AT STORM WATER DETENTION BASIN
- 7 SEEDED LAWN OVER MINIMUM 4" DEPTH TOPSOIL TO LIMITS OF DISTURBANCE
- 8 AREA TO REMAIN NATURAL

Detention Basin Legend:

- POND ZONE: Elevation 683.50 to Permanent Pool @ elevation 687.50
- EDGE ZONE: Permanent Pool @ elevation 687.50 to Bankfull Elevation 692.36
- UPLAND ZONE: Above Bankfull Elevation to limits of 25' Isolation Zone

NOTE:

- 1. THE QUANTITIES AND VARIETIES OF SEED AND PLANT MATERIAL MEET OR EXCEED THE MINIMUM REQUIREMENTS OF THE WAYNE COUNTY STORM WATER ORDINANCE



DETENTION BASIN ENLARGEMENT
SCALE: 1" = 20'-0"

EDGE ZONE - Seed Mix (17,830 sf):

SPECIES	COMMON NAME	RATE (lb./AC.)
Avena sativa	Seed Oats	36.00
Lilium multi florum	Annual R. e	28.00
Andropogon gerardi	Big Blue Stem	6.00
Carex comosa	Bristle Sedge	2.00
Carex h. stercoraria	Porcupine Sedge	2.50
Carex vulpinoidea	Brown Fox Sedge	3.00
Elymus virginicus	Wild Rye	14.00
Glyceria striata	Fowl Manna Grass	1.00
Panicum virgatum	Prairie Switch Grass	5.00
Scirpus atrovirens	Dar. Green Rush	2.00
Scirpus c. perinus	Coelgrass	15.00
Spartina pectinata	Prairie Cord Grass	5.00
Alopecurus pratensis	Water Plantain	15.00
Asclepias incarnata	Swamp Milkweed	2.00
Aster novae angliae	New England Aster	2.00
Carex sp. tripteris	Tall Carex	15.00
Eupatorium maculatum	Spotted Joe Pye Weed	12.50
Iris virginica shrevei	Blue Flag Iris	3.00
Liatris spicata	Marsh Blazing Star	2.00
Loelia cardinalis	Cardinal Flower	12.50
Loelia siphilitica	Great Blue Loelia	12.50
Vernonia altissima	Tall Ironweed	3.50
Veronica hastata	Blue Vervain	1.50
Total		443.50

NOTES:
Seed to be covered with North American Green S15 or equivalent erosion control blanket installed to manufacturer specifications.

UPLAND ZONE - Seed Mix (4,290 sf):

Common Name	Proportion	Min. Purit	Min. Germination
Long eilow Chewings Fescue	5.00	49.56	85.00
Granite Hard Fescue	3.00	29.40	85.00
Sheep Fescue	2.00	19.48	85.00
Total	1.00		

NOTES:
Seed mix to be broadcast over all areas between elevation 689.36 and 695.00. This mix is available at Rhino Seed and Turf Supply, 482.313. Seed to be covered with North American Green S15 or equivalent erosion control blanket installed to manufacturer specifications. **No noxious weed seeds permitted.**

POND ZONE PLANTS

Botanical Name	Common Name	Root	Size	Rate
Carex comosa	Bristle Sedge	plug	2"-3"	1/8 s.f.
Carex lasiocarpa	Common Late Sedge	plug	2"-3"	1/8 s.f.
Eleocharis acicularis	Spike Rush	plug	2"-3"	1/8 s.f.
Scirpus acutus	Hard stemmed Bulrush	plug	2"-3"	1/8 s.f.
Scirpus pungens	Charming Rush	plug	2"-3"	1/8 s.f.
Scirpus validus	Great Bluntst.	plug	2"-3"	1/8 s.f.
Andropogon incarnata	Swamp Milkweed	plug	2"-3"	1/12 s.f.
Iris virginica	Blue Flag Iris	plug	2"-3"	1/12 s.f.
Rhodiola virginica	Arrow Alum	plug	2"-3"	1/12 s.f.
Veronica hastata	Blue Vervain	plug	2"-3"	1/12 s.f.

NOTE: ALL POND PLANTINGS ARE TO BE RANDOMLY INTERMIXED AND PLANTED AT THE SPACING SPECIFIED.

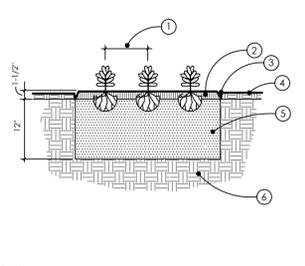
SEED MIX NOTES

- 1. The seed mix shall be applied at the specified rate (lb. per each mix).
- 2. Must be installed to manufacturer specification and requirements.

Manufacturer: JFNew, Inc.
128 Sunset Drive
Ellettsville, IN 46574
574.588.2412

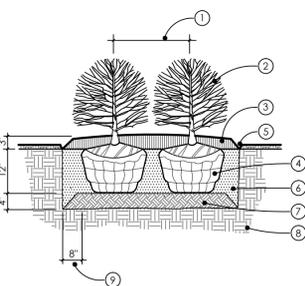
SEED MIX RATES

EDGE - ONE MIX 34 LBS/AC
UPLAND - ONE MIX 37 LBS/AC



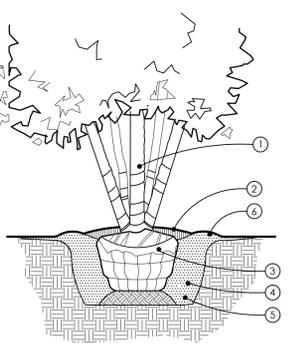
- NOTES:
1. CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION
- 1 SEE PLANT SCHEDULE FOR SPACING
 - 2 2" DEPTH CANADIAN PEAT TOP DRESSING OR 2" DEPTH DOUBLE SHREDDED HARDWOOD MULCH
 - 3 SHOVEL CUT OR METAL EDGE. SEE PLAN
 - 4 FINISH GRADE
 - 5 EXCAVATE EXISTING SOIL TO 12" DEPTH. REPLACE WITH PLANT MIX. SEE GENERAL LANDSCAPE NOTES SHEET L-3 AND SPECIFICATIONS
 - 6 UNDISTURBED SUBGRADE

4 PERENNIAL / GROUND COVER PLANTING
NOT TO SCALE



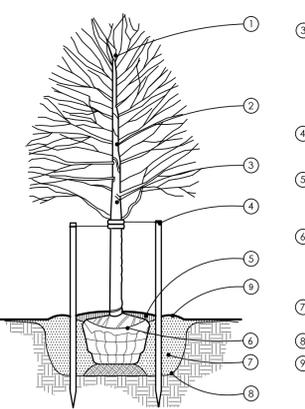
- NOTES:
1. CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION
2. SET TOP OF ROOTBALL 2" ABOVE FINISH GRADE
- 1 SEE PLAN FOR SPACING
 - 2 SHRUBS. SEE PLANT SCHEDULE
 - 3 3" DEPTH DOUBLE SHREDDED HARDWOOD MULCH, TYPICAL
 - 4 REMOVE ALL NON-BIODEGRADABLE TWINE FROM ENTIRE ROOTBALL. REMOVE BURLAP FROM TOP 1/2 OF ROOTBALL.
 - 5 SHOVEL CUT OR METAL EDGE. SEE PLAN
 - 6 EXCAVATE EXISTING SOIL TO 12" DEPTH. REPLACE WITH PLANT MIX. SEE GENERAL LANDSCAPE NOTES SHEET L-3 AND SPECIFICATIONS
 - 7 SCARIFY TO 4" DEPTH AND RECOMPACT
 - 8 UNDISTURBED SUBGRADE
 - 9 MINIMUM 8" BETWEEN ROOTBALL AND EDGE OF PLANTING PIT

3 SHRUB PLANTING
NOT TO SCALE



- NOTES:
1. CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION
2. SET TOP OF ROOTBALL 3" ABOVE FINISH GRADE
- 1 REMOVE ALL TAGS, STRINGS, PLASTICS, AND ANY OTHER MATERIALS WHICH ARE UNSIGHTLY OR COULD CAUSE GIRDLING.
 - 2 COVER PLANTING W/ 3" DOUBLE SHREDDED HARDWOOD BARK MULCH. MINIMUM 6" DIA. LEAVE 3" CIRCLE OF BARE SOIL AROUND BASE OF THE STEMS.
 - 3 REMOVE ALL NON-BIODEGRADABLE MATERIALS FROM THE ROOTBALL. FOLD DOWN ALL BURLAP AND REMOVE WIRE BASKET FROM THE TOP 1/3 OF THE ROOTBALL.
 - 4 PLANT MIX. SEE GENERAL LANDSCAPE NOTES SHEET L-3 AND SPECIFICATIONS
 - 5 TREE PIT TO BE THREE TIMES WIDTH OF ROOTBALL
 - 6 4" TOPSOIL SAUCER

2 MULTISTEM TREE PLANTING
NOT TO SCALE



- NOTES:
1. STAKE TREES 6" CALIPER ONLY
2. GUY TREES 6" CALIPER AND COVER
3. CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION
4. SET STAKES VERTICAL AND EVENLY SPACED
5. STAYS OR GUYS TO BE SET ABOVE FIRST BRANCH
- 1 REMOVE SECONDARY LEADERS. DO NOT PRUNE TERMINAL LEADER OR BRANCH TOPS. PRUNE ALL DEAD AND BROKEN BRANCHES.
 - 2 REMOVE ALL TAGS, STRINGS, PLASTICS, AND ANY OTHER MATERIALS WHICH ARE UNSIGHTLY OR COULD CAUSE GIRDLING.
 - 3 STAKE TREES JUST BELOW FIRST BRANCH W/ 2-3" WIDE BELT-LIKE FABRIC STRIPS ONLY. ABSORB TIE OR APPROVED EQUAL. (CONNECT FROM TREE TO STAKE OPPOSITE FROM EACH OTHER AND ALLOW FOR SOME FLEXING) DO NOT USE WIRE OR ROPE THROUGH A HOSE. REMOVE AFTER ONE YEAR.
 - 4 (2) 2"X2" HARDWOOD STAKES OR EQUIVALENT DRIVEN 6"-8" OUTSIDE OF ROOTBALL. REMOVE AFTER ONE YEAR.
 - 5 COVER PLANTING W/ 3" DOUBLE SHREDDED HARDWOOD BARK MULCH. MINIMUM 6" DIA. LEAVE 3" CIRCLE OF BARE SOIL AROUND THE BASE OF THE TRUNK.
 - 6 REMOVE ALL NON-BIODEGRADABLE MATERIALS FROM THE ROOTBALL. FOLD DOWN ALL BURLAP AND REMOVE WIRE BASKET FROM THE TOP 1/3 OF THE ROOTBALL.
 - 7 PLANT MIX. SEE GENERAL LANDSCAPE NOTES SHEET L-3 AND SPECIFICATIONS
 - 8 TREE PIT TO BE 3 TIMES WIDTH OF ROOTBALL
 - 9 4" TOPSOIL SAUCER
- NOTE:
TREE SHALL BEAR SAME RELATION TO FINISH GRADE AS IT BORE ORIGINALLY OR SLIGHTLY HIGHER THAN FINISH GRADE UP TO 4" ABOVE GRADE. IF DIRECTED BY LANDSCAPE ARCHITECT FOR HEAVY CLAY SOIL AREAS.

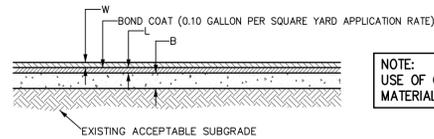
1 DECIDUOUS TREE PLANTING
NOT TO SCALE

NOT FOR CONSTRUCTION

SURVEY PROVIDED BY:
DESINE ENGINEERING, INC
2183 Pless Drive
Brighton, MI 48114
810.227.9533



JOB NUMBER: 9173300
DATED: October 11, 2017



NOTE:
USE OF COAL TAR BITUMINOUS MATERIAL IS PROHIBITED.

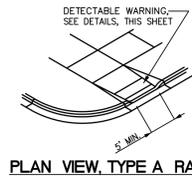
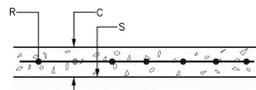
BITUMINOUS PAVEMENT CROSS SECTION

NOT TO SCALE

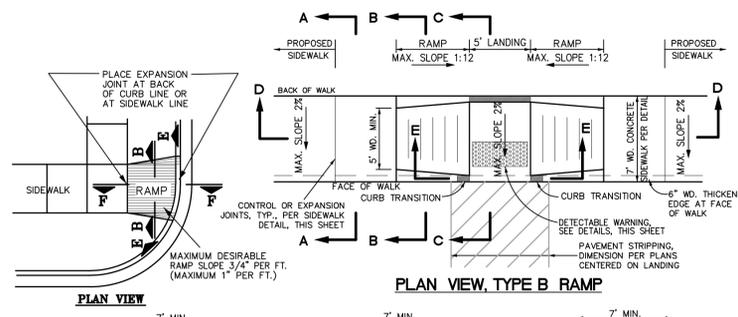
PAVEMENT CROSS SECTION NOTES:

- Refer to the General Notes, Road Construction Notes and Typical Road Cross Section detail on the project plans for additional requirements.
- Unsuitable soils found within the 1 on 1 influence zone of the roadway, such as muck, peat, topsoil, marl, silt or other unstable materials shall be excavated and replaced up to the proposed subgrade elevation with MDOT Class III granular material compacted to 95% maximum unit weight, modified proctor.
- Contractor shall proof roll prepared subgrade as directed by Engineer. Unacceptable areas of subgrade shall be undercut and replaced as directed by Engineer. See Subgrade Undercut & Replacement Cross Section detail for additional requirements.
- Owner/Developer may delay placement of the bituminous wearing course. Repair of the bituminous leveling course may be necessary due to any delay in placement of the bituminous wearing course. Substantial repair to the bituminous leveling course may be necessary if placement of the bituminous wearing course is delayed for more than 12 months after placement of the bituminous leveling course. The bituminous leveling course shall be repaired as directed by Engineer prior to placement of the bituminous wearing course.

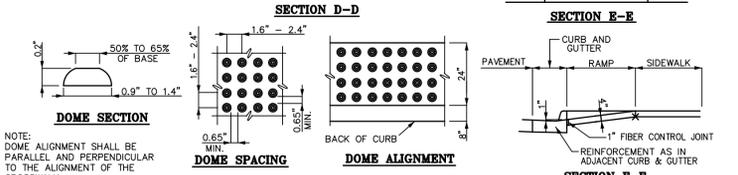
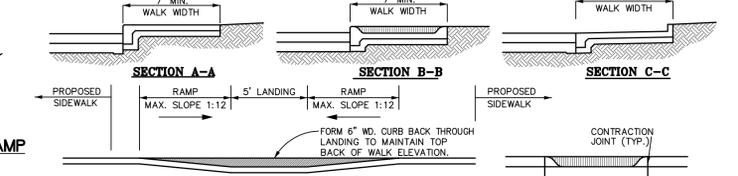
KEY	DESCRIPTION	MATERIAL SPECIFICATION	MINIMUM COMPACTED THICKNESS
W	WEARING COURSE	MDOT 36A	2.0"
L	LEVELING COURSE	MDOT 13A	2.0"
B	AGGREGATE BASE	MDOT 21AA	6"



PLAN VIEW, TYPE A RAMP



PLAN VIEW, TYPE B RAMP



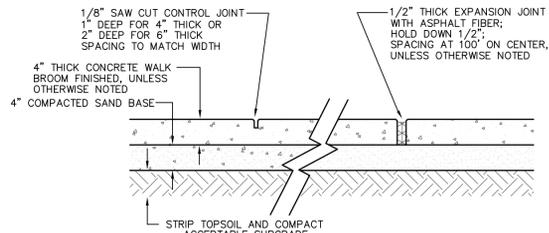
BARRIER FREE RAMP AND DETECTABLE WARNING DETAILS

NOT TO SCALE

CONCRETE PAVEMENT CROSS-SECTION

NOT TO SCALE

KEY	DESCRIPTION	MATERIAL SPECIFICATION	MINIMUM THICKNESS
R	REINFORCEMENT	6 X 6 W.W.F.	N/A
C	CONCRETE	MDOT 35P	8"
S	COMPACTED SUBBASE	MDOT CL-II	6"



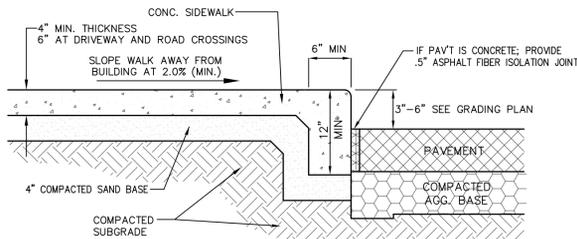
CONCRETE SIDEWALK CROSS SECTION

NOT TO SCALE

FOR USE ON-SITE

KEY	DESCRIPTION	MATERIAL SPECIFICATION	MINIMUM COMPACTED THICKNESS
B	AGGREGATE SURFACE	CRUSHED CONCRETE	6"
S	GRANULAR SUBBASE	N/A	N/A

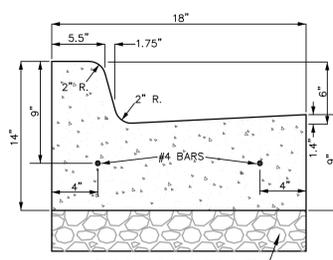
- NOTES:
- SEE PLAN FOR WIDTH OF SIDEWALK.
 - PROVIDE CONCRETE TYPE PER LOCAL CODE. (3500 PSI AIR ENTRAINED)
 - SIDEWALK SHALL HAVE 2% CROSS SLOPE.



THICKENED EDGE CONCRETE WALK DETAIL

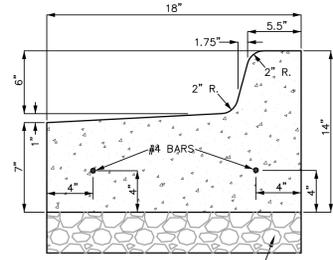
NOT TO SCALE

ALL SIDEWALKS SHALL MEET ADA REQUIREMENTS
NOTE: FOR USE ON-SITE WHERE ABUTTING PAVED SURFACE



CONC. CURB DETAIL -MDOT TYPE F

NOT TO SCALE

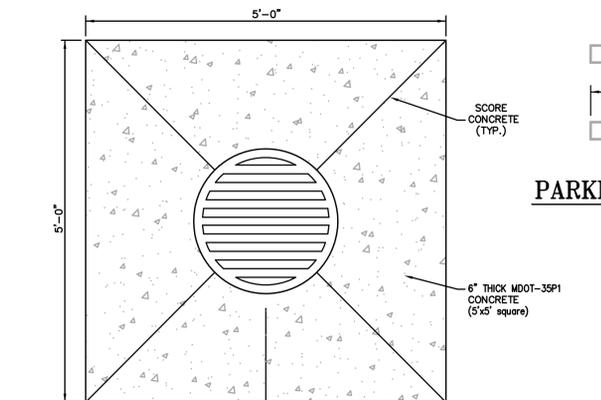


CONC. CURB DETAIL -MDOT TYPE F REVERSE PITCH

NOT TO SCALE

PRIVATE DEVELOPMENT CURB NOTES:

- Refer to the project plans for the proposed locations of the specific curb types.
- The construction specifications of the appropriate Local Municipality are a part of this work. Refer to the Private Road Construction Notes and/or Driveway and Parking Lot Construction Notes and the General Notes on the project plans for additional requirements.
- Concrete material shall meet or exceed the specification requirements of the appropriate Local Municipality. Unless specified otherwise by the Local Municipality, concrete material shall be air-entrained and shall have a minimum 28-day class design strength of 3500 psi. Contractor shall submit concrete mix design and aggregate mechanical analysis report to the Local Municipality and Engineer for review and approval prior to use.
- Install transverse contraction control joints in accordance with the Local Municipality requirements. If not specified by the Local Municipality, then install transverse contraction control joints in curb with 1" minimum depth at 10' on center. Tool joints in fresh concrete or saw cut within 8 hours.
- Install transverse expansion control joints in accordance with the Local Municipality requirements. If not specified by the Local Municipality, then install transverse expansion control joints in curbs as follows: 300' maximum on center, at spring points of intersecting streets and within 10' on each side of catch basins. Transverse expansion control joints shall be 1" thick asphalt fiber joint filler matching entire curb cross section.
- Provide 0.5" asphalt fiber control joint between back of curb and all other concrete structures, such as concrete sidewalks and concrete driveways.
- Curb Contractor shall provide final adjustment of catch basin castings in curb line. Castings shall be tucked pointed to structure water tight with concrete or mortar inside and outside of casting.
- Install curb cuts for all existing and proposed sidewalks and pedestrian ramps in accordance with the American Disabilities Act and the Barrier Free Design requirements of the appropriate Local, County and/or State Agency. Install curb cuts for all existing and proposed vehicular ramps and drives as noted on the project plans.



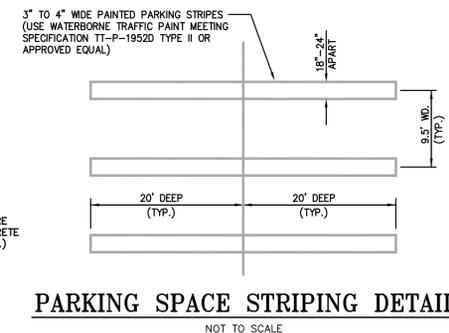
CATCH BASIN COLLAR

NO SCALE

DRIVEWAY AND PARKING LOT CONSTRUCTION NOTES:

- The grading, driveway and parking lot specifications of the Local Municipality are a part of this work. Refer to the General Notes on the project plans for additional requirements.
- Driveway and Parking Lot work shall include site clearing of vegetation and tree stumps; stripping and stockpiling of topsoil for reuse; mass grading cuts and fills; removal of unsuitable soils from the paved surface influence area; culvert placement; subgrade preparation including fine grading and proof roll; subgrade undercuts and/or placement of geotextile fabric if needed; placement and preparation of granular subbase and aggregate base courses including fine grading and compaction; placement of concrete curb and gutter; watering of aggregate base within 24 hours of paving to obtain optimum moisture content; bituminous and/or concrete pavement including placement, compaction and bond coats; cleaning of bituminous pavements between courses if needed; preparation, finish work and restoration as needed to connect to existing pavements, ditches, driveways, etc.; adjustment of storm and utility structure castings to match finish grade; placement of shoulders and finish grading of ditches; pavement markings; topsoil placement; seed & mulch; site cleanup; restoration; and other work as shown on the project plans and specifications.
- Existing and proposed grades shown in the driveway profile view(s) are along the centerline of each driveway. Refer to the plan view and curve tables on the project plans for horizontal alignment and curve data. Proposed contours for ditches, curbs, driveway crown and pavement slope may not be shown in the plan view and/or grading plan.
- Contractor shall coordinate scheduling a Pre-Construction Meeting with Engineer prior to commencement of driveway and/or parking lot work.
- Contractor shall coordinate construction staking, testing, documentation submittal and observation with the appropriate Agency, Surveyor and/or Engineer as required for construction, certification and/or acceptance of the driveway(s) and/or parking lot(s). All materials used and work done shall meet or exceed the requirements and specifications noted on the project plans. Any materials used or work done that does not meet said requirements and/or specifications shall be replaced and/or redone at Contractor's expense. The Owner/Developer may wait for test results, certifications and/or Agency reviews prior to accepting work.
- Contractor shall take all appropriate job site safety precautions. Refer to the Traffic Control specifications of the appropriate Regulatory Agency for work within a public road right of way.
- Contractor shall take precautions to prevent contamination of driveway and/or parking lot materials during handling, installation and construction procedures. Contaminated materials shall be removed and replaced at Contractor's expense.
- Clear vision areas shall be created where required; refer to the Clear Vision Area detail on the project plans. Relocate existing signs/utilities as acceptable to the appropriate Agency. Owner/Developer shall coordinate installation of permanent street signage after completion of roadwork.
- When side slopes within utility easements exceed 1 on 10 (10%), Contractor shall rough grade a flat shelf within the easement area as acceptable to Engineer and restore following underground utility installation.

- NOTES:
- SEE SHEET SP FOR BARRIER FREE PARKING SPACE DIMENSIONS.
 - STANDARD SPACES SHALL USE WHITE PAINT, BARRIER FREE SPACES SHALL USE BLUE PAINT.
 - 18 FOOT DEEP SPACES ARE ONLY PERMITTED WHERE TWO FOOT OF OVERHANG IS PROVIDED.



PARKING SPACE STRIPING DETAIL

NOT TO SCALE

GENERAL NOTES:

- Contractor shall perform the work in accordance with the requirements of the appropriate Local, County and State Agencies and all other Government and Regulatory Agencies with jurisdiction over the project. Contractor shall notify the appropriate Agencies in advance of each stage of work in accordance with each Agency's requirements.
- Contractor shall comply with all permit, insurance, licensing and inspection requirements associated with the work. Prior to construction, Contractor and Owner/Developer shall determine who is responsible for obtaining each required permit. Contractor shall verify that the each required permit has been obtained prior to commencement of the stage of work associated with the required permit(s).
- Contractor shall furnish liability insurance and property damage insurance to save harmless the Owner, Developer, Architect, Engineer, Surveyor and Government Agencies for any accident occurring during the construction period. Refer to the appropriate Local, County and State Agencies for additional requirements. Copies of insurance certifications shall be made available to the Owner/Developer.
- Contractor shall conduct and perform work in a safe and competent manner. Contractor shall perform all necessary measures to provide for traffic and pedestrian safety from the start of work and through substantial completion. Contractor shall determine procedures and provide safety equipment such as traffic controls, warning devices, temporary pavement markings and signs as needed. Contractor shall comply with the safety standards of the State Department of Labor, the occupational health standards of the State Department of Health and safety regulations of the appropriate Local, County, State and Federal Agencies. Refer to the safety specifications of the appropriate Regulatory Agencies. The Contractor shall designate a qualified employee with complete job site authority over the work and safety precautions; said designated employee shall be on site at all times during the work.
- Contractor shall coordinate scheduling of all work in the proper sequence, including work by Subcontractors. Additional costs due to improper planning by Contractor or work done out of sequence as determined by standard acceptable construction practices, shall be Contractor's responsibility.
- Contractor shall contact the MISS DIG locating system, or other appropriate local underground utility locating Agency, a minimum of three (3) working days prior to construction. Existing utility information on the project plans may be from information disclosed to this firm by the Utility Companies, Local, County or State Agencies, and/or various other sources. No guarantee is given as to the completeness or accuracy thereof. Prior to construction, locations and depths of all existing utilities (in possible conflict with the proposed improvements) shall be verified in the field.
- Contractor shall coordinate scheduling a Pre-Construction Meeting with Engineer prior to commencement of work.
- The Local Municipality, County and/or State in which the project is located may require an Engineer's Certification of construction of the proposed site improvements. Contractor shall verify the certification requirements with Engineer prior to commencement of work. Contractor shall coordinate construction staking, testing, documentation submittal and observation with the appropriate Agency, Surveyor and/or Engineer as required for Engineer's Certification and Government Agency Acceptance. All materials used and work done shall meet or exceed the requirements of certification and acceptance, the contract documents and the material specifications noted on the project plans. Any materials used or work done that does not meet said requirements, contract documents and/or specifications shall be replaced and/or redone at Contractor's expense. The Owner/Developer may wait for test results, certifications and/or Agency reviews prior to accepting work.
- Engineer may provide subsurface soil evaluation results, if available, to Contractor upon request. Subsurface soil evaluation results, soils maps and/or any other documentation does NOT guarantee existing soil conditions or that sufficient, acceptable on-site granular material is available for use as structural fill, pipe bedding, pipe backfill, road subbase or use as any other granular material specified on the project plans. On-site granular material that meets or exceeds the material specifications noted on the project plans may be used as structural fill, pipe bedding, pipe backfill and/or road subbase material. On-site granular material shall be stockpiled and tested as acceptable to the appropriate Agency and/or Engineer prior to use.

- During the performance of their work, Contractor shall be solely responsible for determining soil conditions and appropriate construction methods based on the actual field conditions. Contractor shall furnish, install and maintain sheeting, shoring, bracing and/or other tools and equipment and/or construction techniques as needed for the safety and protection of the workers, pedestrians and vehicular traffic and for protection of adjacent structures and site improvements.
- Contractor shall install temporary and permanent soil erosion and sedimentation control devices at the appropriate stages of construction in accordance with the appropriate regulatory Agencies. Refer to Soil Erosion and Sedimentation Control Plans and Notes on the project plans.
- Structural fill shall be placed as specified on the project plans and within the 1 on 1 influence zone of all structures, paved areas and other areas subject to vehicular traffic. Structural fill shall be placed using the controlled density method (12" maximum lifts, compacted to 95% maximum unit weight, modified proctor). Fill material shall meet or exceed the specifications noted on the project plans or as directed by Engineer when not specified on the project plans.
- All existing monuments, property corners, ground control and benchmarks shall be protected and preserved; and if disturbed by Contractor, shall be restored at Contractor's expense. Contractor shall notify Surveyor of any conflicts between existing monuments, property corners, ground control and/or benchmarks and the proposed site improvements.
- Contractor shall notify Owner/Developer and Engineer immediately upon encountering any field conditions, which are inconsistent with the project plans and/or specifications.
- When noted on the project plans for demolition and/or removal, Contractor shall remove existing structures, building and debris and recycle and/or dispose of in accordance with Local, County, State and Federal regulations.
- Contractor shall remove excess construction materials and debris from site and perform restoration in accordance with the project plans and specifications. Disposing of excess materials and debris shall be performed in accordance with Local, County, State and Federal regulations.
- Construction access to the site shall be located as acceptable to the Owner/Developer and to the appropriate Local, County and/or State Agency with jurisdiction over the road(s) providing access to the site. Construction access shall be maintained and cleaned in accordance with the appropriate Local, County and/or State Agencies and as directed by Owner/Developer and/or Engineer.
- Contractor shall take necessary precautions to protect all site improvements from heavy equipment and construction procedures. Damage resulting from Contractor actions shall be repaired at Contractor's expense.

DESIGN: WMP	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: L.F.						
CHECK: WMP						

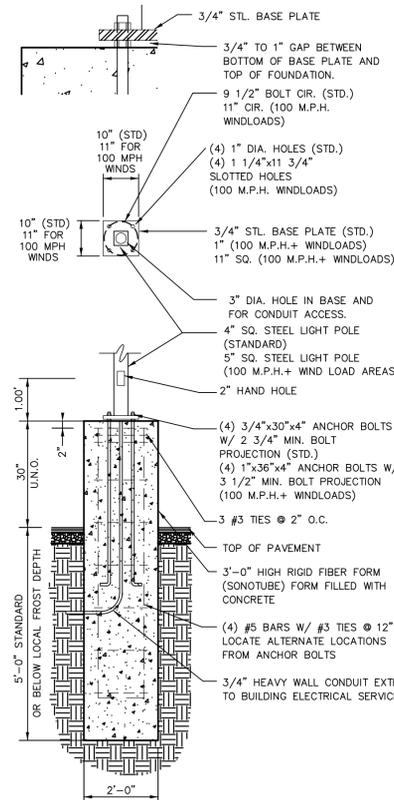


SITE DEVELOPMENT NOTES & DETAILS

CLIENT: CONSTELLIUM	SCALE: N/A
PROJECT No.: 9173300	
DWG NAME: 3300-DTS	
ISSUED: APRIL 11, 2018	

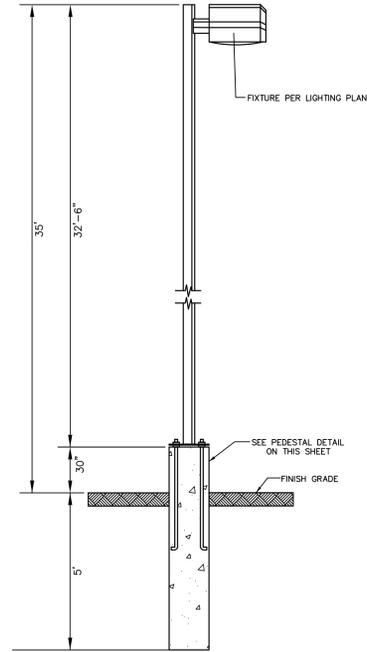
DT1





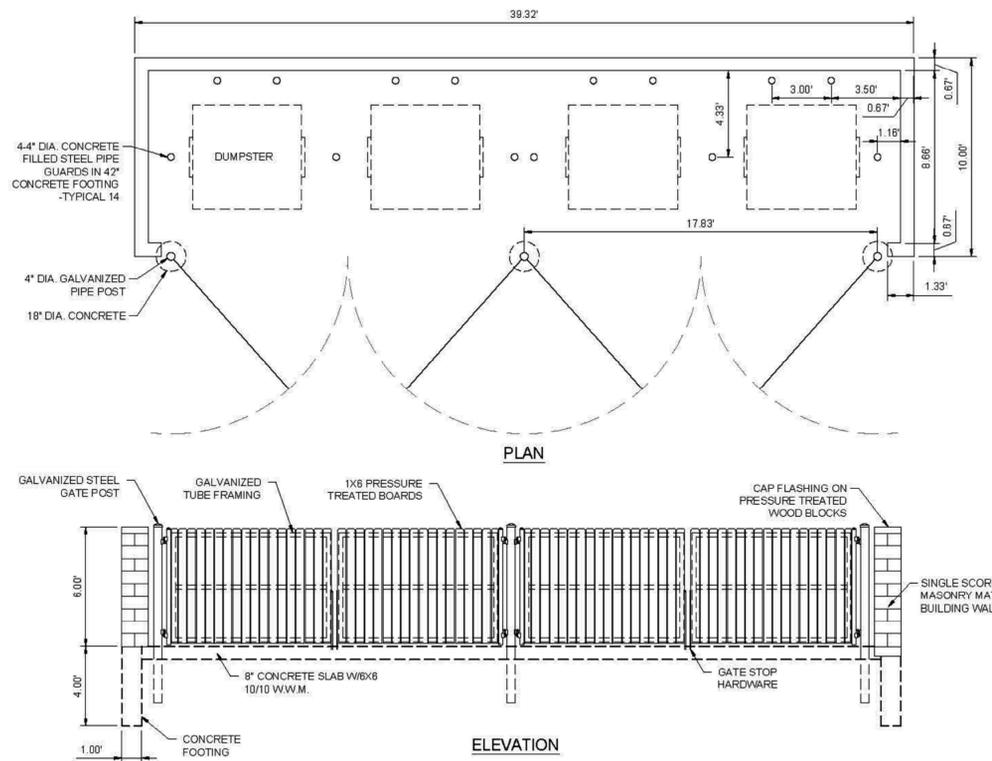
LIGHT STANDARD DETAIL
NOT TO SCALE

- NOTES**
- FOUNDATION SHOWN IS A TYPICAL DESIGN. WIND LOADS OF MORE THAN 100 MPH AND UNSTABLE SOIL CONDITIONS MAY REQUIRE AN ALTERNATE DESIGN. VERIFY CONDITION OF SOILS WITH SOILS REPORT.
 - FOUNDATIONS SHALL EXTEND BELOW FROST DEPTH PER LOCAL CODES.
 - CONCRETE SHALL HAVE MIN 2500 PSI COMPRESSIVE STRENGTH AT 28 DAYS.

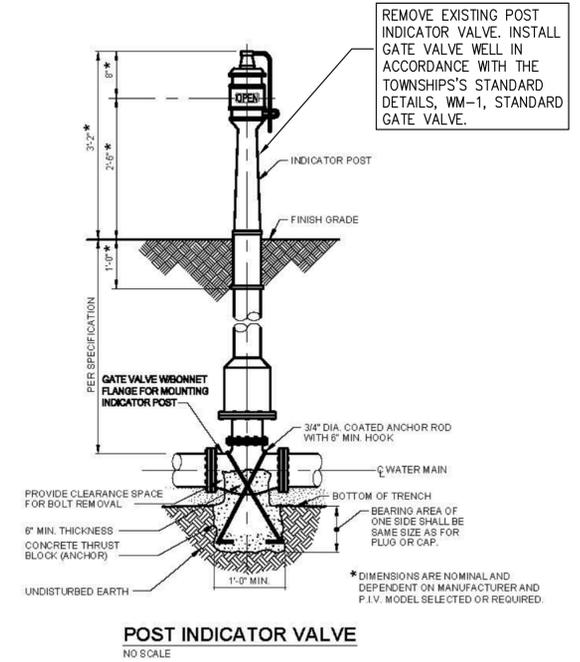


LIGHT POLE DETAIL
NOT TO SCALE

- NOTE:**
1. PROPOSED LIGHTING SHALL COMPLY TO APPROPRIATE MUNICIPAL STANDARDS.



DUMPSTER ENCLOSURE
NOT TO SCALE

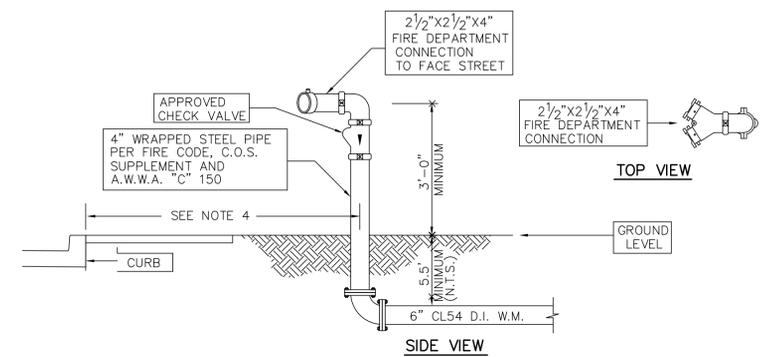


POST INDICATOR VALVE
NO SCALE



BARRIER FREE PARKING SIGN DETAILS
NOT TO SCALE

- GENERAL NOTES**
- Provide Building I.D. On Remote Fire Dept. Connection.
 - No Trees, Bushes Or Walls Within 5' Radius Of Fire Dept. Connection
 - If Fire Sprinkler Design Indicates Demand Of 1000 GPM Or Greater, The Underground Fire Dept. Connection Line Shall Be Increased To 6" Diameter With A Three Way 2 1/2" Fire Dept. Hose Connection
 - 4" Min. To Back Of Curb, or 2" Min To Back Of Sidewalk, or When No Curb, 4" Max. Outside The Clear Zone.



REMOTE FIRE DEPARTMENT CONNECTION
NOT TO SCALE

DESIGN: WMP	REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION
DRAFT: L.F.		04-11-18	REVISED PER REVIEW COMMENTS			
CHECK: WMP						



SITE DEVELOPMENT NOTES & DETAILS

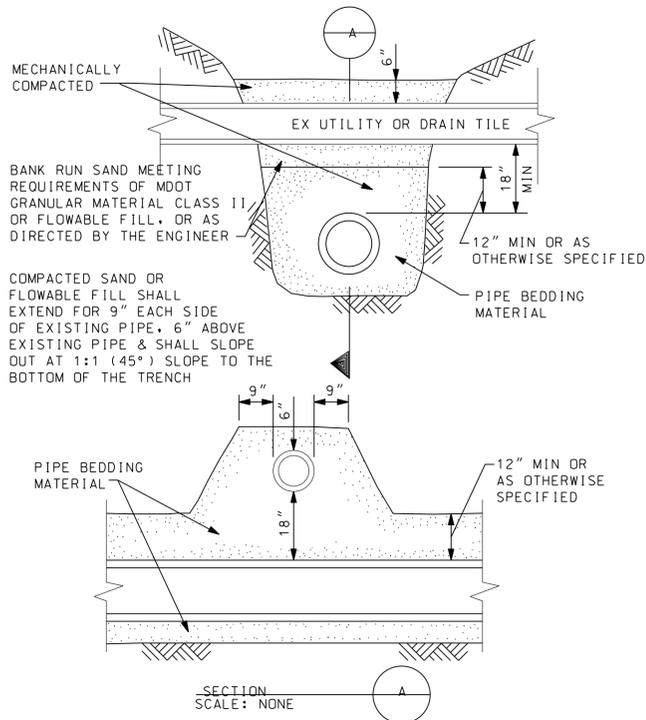
CLIENT:
CONSTELLUM
6331 SCHOONER DRIVE
VAN BUREN TWP, MI

SCALE: N/A
PROJECT No.: 9173300
DWG NAME: 3300-DTS
ISSUED: APRIL 11, 2018



DT2

NOTE:
WHERE CONCRETE ENCASEMENT IS SPECIFIED FOR NEW UTILITY A 6" MINIMUM LAYER OF MECHANICALLY COMPACTED SAND SHALL BE MAINTAINED BETWEEN EXISTING UTILITY & TOP OF CONCRETE ENCASEMENT.



STANDARD PIPE SUPPORT
N.T.S.

GENERAL NOTES

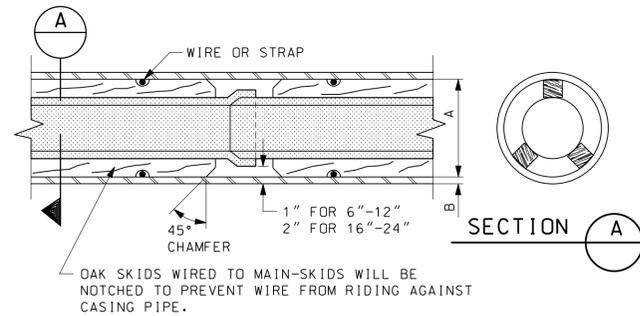
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL ATTEND A PRECONSTRUCTION MEETING, AT A TIME AND PLACE AS ARRANGED BY THE COMMUNITY, IN WHICH VARIOUS UTILITY COMPANIES AND GOVERNMENTAL AGENCY REPRESENTATIVES WILL BE PRESENT.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR MUST HAVE IN HIS POSSESSION A COPY OF ALL PERMITS NECESSARY TO CONSTRUCT A CONNECTION TO, OR AN EXTENSION OF, THE WATER SUPPLY, SANITARY SEWER, OR STORM SEWER SYSTEMS.
- THE CONTRACTOR SHALL MAINTAIN HIS CONSTRUCTION OPERATIONS WITHIN THE PRESENTLY EXISTING ROAD RIGHTS-OF-WAY AND EASEMENTS AS NOTED ON THE PLANS THROUGHOUT THE PROJECT. IN THE EVENT THAT THE CONTRACTOR DEEMS IT NECESSARY OR ADVISABLE TO OPERATE BEYOND THE LIMITS OF THE EXISTING RIGHTS-OF-WAY OR EASEMENTS, HE SHALL BE RESPONSIBLE FOR MAKING SPECIAL WRITTEN AGREEMENTS WITH THE PROPERTY OWNERS AND SHALL FURNISH SUCH COPIES OF AGREEMENTS TO THE COMMUNITY AND ENGINEER.
- THE CONTRACTOR SHALL NOTIFY "MISS DIG" (800-482-7171) 3 DAYS (NOT INCLUDING HOLIDAYS OR WEEKENDS) BEFORE STARTING CONSTRUCTION. HE SHALL MAKE ANY NECESSARY ARRANGEMENTS WITH UTILITY COMPANIES FOR RELOCATION OF EXISTING UTILITIES. THESE ARRANGEMENTS SHALL BE MADE IN SUFFICIENT TIME TO ALLOW THE RELOCATION WORK TO BE COMPLETED WITHOUT INTERFERING WITH OR DELAYING THE SEWER CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES AND THE ENGINEER 48 HOURS PRIOR TO UNCOVERING ANY EXISTING UTILITIES.
- ON ALL WORK WITHIN THE WAYNE COUNTY RIGHT-OF-WAY, THE COMMUNITY 72 HOURS PRIOR TO THE START OF ANY CONSTRUCTION.
- THE CONTRACTOR SHALL MAINTAIN ALL TRAFFIC AT ALL TIMES AS PER THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- THE CONTRACTOR SHALL AT ALL TIMES PROVIDE EMERGENCY ACCESS TO PROPERTY IN THE VICINITY OF THE CONSTRUCTION FOR POLICE AND FIRE EQUIPMENT, AMBULANCES OR OTHER EMERGENCY VEHICLES TO PROTECT LIFE, HEALTH AND PROPERTY.
- THE CONTRACTOR SHALL MAINTAIN PUBLIC ROADS AFFECTED BY THE CONSTRUCTION OPERATIONS IN A PASSABLE CONDITION UNTIL SUCH TIME AS FINAL RESTORATION OF THESE IMPROVEMENTS CAN BE MADE. IF THE PUBLIC SAFETY IS IN DANGER OR THE NECESSITY EXISTS FOR MAINTAINING TRAFFIC, BACKFILLING MUST BE COMPLETED IMMEDIATELY. IN THE EVENT THAT THE NECESSARY BACKFILL MATERIAL AND EQUIPMENT ARE NOT AVAILABLE WHEN DIRECTION IS GIVEN FOR IMMEDIATE BACKFILL, THE TRENCH SHALL BE BACKFILLED WITH NATIVE MATERIAL TO PROVIDE FOR THE NECESSARY MAINTENANCE OF TRAFFIC AND SAFETY; HOWEVER, THE NATIVE MATERIAL SHALL BE REMOVED WITHIN 48 HOURS AND THE TRENCH PROPERLY BACKFILLED.

GENERAL NOTES CONTINUED

- NO STREET, ROAD OR SECTION THEREOF SHALL BE CLOSED TO THROUGH TRAFFIC UNLESS AUTHORIZED BY THE AGENCY WITH JURISDICTION OVER THE ROADS. PRIOR TO CLOSING A STREET, ROAD, OR SECTION THEREOF, THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A COPY OF A DETOUR PLAN APPROVED BY THE AGENCY HAVING JURISDICTION OVER THE ROADS.
- IN THE EVENT ROADS ARE TO BE CLOSED, THE CONTRACTOR SHALL NOTIFY THE LOCAL FIRE DEPARTMENT, POLICE DEPARTMENT, LOCAL ROAD AUTHORITY, AMBULANCE AND EMERGENCY SERVICES, DEPARTMENT OF PUBLIC WORKS, PUBLIC TRANSIT AUTHORITY, PUBLIC SCHOOL SYSTEM, LOCAL TRASH PICKUP AUTHORITY, AND PUBLIC AND PRIVATE UTILITIES DAILY AS TO WHAT STREETS WILL BE PARTLY BLOCKED OR CLOSED, THE LENGTH OF TIME THE STREETS WILL BE BLOCKED OR CLOSED AND WHEN THE STREETS WILL BE REOPENED TO TRAFFIC.
- PAVED STREETS AND DRIVEWAYS SHALL BE MAINTAINED IN A REASONABLE STATE OF CLEANLINESS AND THE CONTRACTOR SHALL REMOVE ACCUMULATIONS OF DEBRIS CAUSED BY HIS OPERATIONS. THE CONTRACTOR SHALL HAVE, AS A MINIMUM, AN OPERATING SWEEPER BROOM ON THE SITE AT ALL TIMES. THE PAVEMENT SHALL BE CLEANED AT THE CLOSE OF EACH DAYS OPERATION AND AS OFTEN AS NECESSARY BEFORE THAT TIME. FAILURE TO COMPLY SHALL BE CAUSE TO STOP CONSTRUCTION. CONTRACTOR SHALL ALSO COMPLY WITH THE LOCAL AIR POLLUTION CONTROL ORDINANCE.
- ALL GRAVEL AND DIRT ROADS, STREETS OR DRIVEWAYS USED SHALL BE MAINTAINED BY GRADING, PLACING DUST PALLIATIVES, AND MAINTENANCE GRAVEL IN SUFFICIENT QUANTITIES TO ELIMINATE DUST AND MAINTAIN TRAFFIC AS DIRECTED BY THE AGENCY.
- CONTRACTOR SHALL PROVIDE ALL NECESSARY SHEETING, SHORING, DEWATERING, BRACING, TRENCH BOXES, ETC., TO PERFORM WORK SAFELY AND PROTECT EXISTING UTILITIES AND IMPROVEMENTS.
- THE FLOW IN THE EXISTING SEWERS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. 16. CULVERTS, DITCHES, DRAIN TILES, TILE FIELD, DRAINAGE STRUCTURES, ETC., THAT ARE DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE IMMEDIATELY RESTORED.
- ALL PROPERTY IRONS AND MONUMENTS, IF DISTURBED OR DESTROYED BY THE CONTRACTOR'S OPERATION, SHALL BE REPLACED BY A LICENSED LAND SURVEYOR AT THE CONTRACTOR'S EXPENSE.
- AFTER ALL THE PIPE, STRUCTURES, ETC., HAVE BEEN LAID, CONSTRUCTED, AND BACKFILLED, THE SYSTEM SHALL BE TESTED AND FINAL INSPECTED. THE INSPECTION AND TESTING SHALL CONSIST OF A FIRST INSPECTION, TELEVISION INSPECTION (IF APPLICABLE) TESTING, AND FINAL INSPECTION AND MEASUREMENT. THE CONTRACTOR SHALL PROVIDE THE NECESSARY SUPERVISION, LABOR, TOOLS, EQUIPMENT, AND THE MATERIALS NECESSARY FOR THE TESTS WHICH SHALL BE CONDUCTED IN THE PRESENCE OF THE ENGINEER. HE ENGINEER SHALL BE NOTIFIED TWO (2) WORKING DAYS IN ADVANCE OF ALL TESTING.

GENERAL NOTES CONTINUED

- THE FIRST INSPECTION SHALL BE COMPLETED AND ALL REPAIRS MADE IN AMPLE TIME SO THAT THE TELEVISION INSPECTION OF THE UNDERGROUND PORTION OF THE SYSTEM CAN BE COMPLETED WITHIN FOUR (4) WEEKS OF THE COMPLETION OF THE CONSTRUCTION. WHEN RE-TELEVISION IS NECESSARY, AN ADDITIONAL TWO (2) WEEKS WILL BE ALLOWED FOR COMPLETION. TESTING OF THE SYSTEM AS HEREIN DESCRIBED SHALL IMMEDIATELY FOLLOW THE TELEVISION INSPECTION AND SHALL BE COMPLETED WITHIN A TWO (2) WEEK PERIOD.
- FAILURE TO MAINTAIN A SCHEDULE IN COMPLIANCE WITH THESE TERMS WILL AUTOMATICALLY CAUSE THE STOPPAGE OF OTHER WORK AT THE PARTICULAR SITE IN QUESTION UNTIL SUCH TIME AS THE FINAL INSPECTION OF THE COMPLETED UNDERGROUND PORTION OF THE SYSTEM HAS PROGRESSED TO ACCEPTABLE LIMITS.
- THE CONTRACTOR SHALL HAVE THE UNDERGROUND PORTION OF THE SEWER SYSTEM READY FOR THE FIRST INSPECTION WITHIN TWO (2) WEEKS AFTER THE COMPLETION OF UTILITY.
- THE FIRST INSPECTION SHALL CONSIST OF A VISIBLE AND AUDIBLE CHECK OF SEWERS, MANHOLES, GATE WELLS, AND OTHER STRUCTURES TO ASCERTAIN THAT THE STRUCTURE STEPS HAVE BEEN PLACED, ALL LIFT HOLES PLUGGED, THE CHANNELING OF THE MANHOLE BOTTOMS COMPLETED, ALL VISIBLE OR AUDIBLE LEAKS STOPPED, ALL PIPE HAS BEEN PLACED STRAIGHT AND TRUE TO THE PROPER GRADES AND ELEVATION, THE REQUIRED ADJUSTING RINGS AND FRAME AND COVER PROPERTY INSTALLED, ALL TRENCHES AND STRUCTURES BACKFILLED IN AN ACCEPTABLE MANNER AND THAT THE SYSTEM HAS BEEN THOROUGHLY CLEANED.
- THE FIRST INSPECTION SHALL BE CONSIDERED COMPLETED WHEN ALL TREE PAIRS HAVE BEEN MADE AND THE SYSTEM IS READY FOR A TELEVISION INSPECTION AND SUBSEQUENT TESTING.
- TRENCH BACKFILL UNDER ROAD SURFACES, PAVEMENTS, CURBS, DRIVEWAY, SIDEWALK AND WHERE THE TRENCH EDGE IS WITHIN 3- FEET OF THE PAVEMENT SHALL BE TRENCH B (SAND) PER SPECIFICATIONS SECTION 312333. TRENCHING AND BACKFILLING.
- AFTER ALL TESTING, TELEVISION INSPECTION, FINAL RESTORATION AND CLEAN-UP HAS BEEN COMPLETED, A FINAL INSPECTION AND MEASUREMENT WILL BE DONE. THE FINAL INSPECTION SHALL BE REQUESTED BY THE CONTRACTOR AND CONSIST OF, BUT IS NOT LIMITED TO, CHECKING FOR PROPER ALIGNMENT, PROPER GRADE, CLEANLINESS, LEAKS, CONFORMANCE TO THE PLANS AND SPECIFICATION, PROPER STRUCTURAL AND MECHANICAL ADJUSTMENTS, AND RESTORATION. FINAL MEASUREMENT INCLUDES STRUCTURE ELEVATIONS, DISTANCES BETWEEN STRUCTURES, AND CONFIRMATION UTILITIES ARE LOCATED WITHIN EASEMENT AND RIGHT-OF-WAY AREAS.
- SUCCESSFUL COMPLETION OF ANY TEST OR INSPECTION SHALL NOT RELIEVE THE CONTRACTOR FROM THEIR RESPONSIBILITY TO CORRECT ANY DEFICIENCY OR NONCONFORMANCE TO THE PLANS OR SPECIFICATIONS WHICH MAY THEREAFTER BECOME KNOWN.



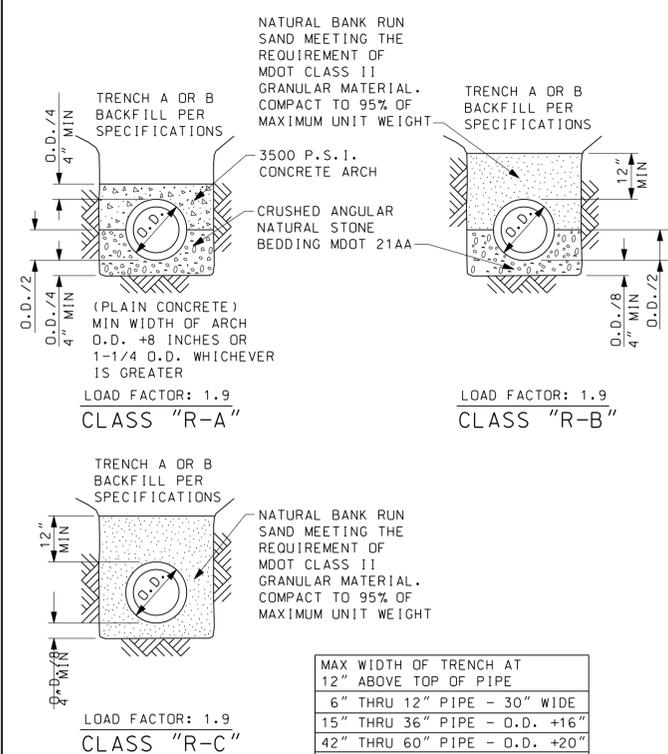
OAK SKIDS WIRED TO MAIN-SKIDS WILL BE NOTCHED TO PREVENT WIRE FROM RIDING AGAINST CASING PIPE.

DIA OF SEWER	DIA OF MAIN	MIN "A"	ROAD CROSSING MIN "B"	RAILROAD CROSSING MIN "B"
6"	16"	.375	.375	.375
8"	16"	.375	.375	.375
10"	12"	.375	.438	.438
12" & 15"	16"	.375	.500	.500
18"	20"	.375	.500	.500
	24"	.375	.500	.500

CASING PIPE SHALL BE WELDED STEEL PIPE A.S.T.M. A-252, GR 2 UNLESS OTHERWISE SPECIFIED.

- NOTES:
- NO WATER SHALL BE USED IN BORING UNDER RAILROADS.
 - MAINTAIN MINIMUM OF 5'-6" OF COVER BETWEEN BASE OF RAIL AND TOP OF CASING.
 - THE ENDS OF THE CASING SHALL BE SUITABLY PROTECTED AGAINST THE ENTRANCE OF FOREIGN MATERIAL, BUT SHALL NOT BE TIGHTLY SEALED.
 - WHEN BORING ALL VOIDS OUTSIDE OF CASING PIPE SHALL BE FILLED BY MEANS OF PRESSURE GROUTING WITH 1:3 CEMENT-SAND MORTAR. THIS WORK MUST BE ACCOMPLISHED WITHIN 24 HOURS AFTER THE CROSSING HAS BEEN COMPLETED. BORING SHALL EXTEND A MINIMUM OF 10 FEET OUTSIDE THE EDGES OF THE PAVEMENT.
 - SKIDS ARE TO BE MINIMUM OF 80% OF PIPE LENGTH.
 - CASING SPACERS AS ALLOWED BY THE ENGINEER.

STANDARD CASING SECTION



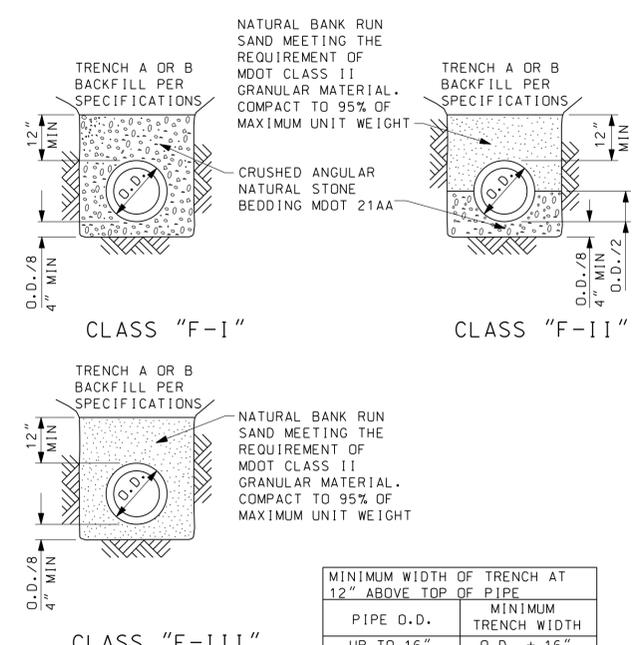
(PLAIN CONCRETE) MIN WIDTH OF ARCH O.D. +8 INCHES OR 1-1/4 O.D. WHICHEVER IS GREATER
LOAD FACTOR: 1.9
CLASS "R-A"

LOAD FACTOR: 1.9
CLASS "R-B"

LOAD FACTOR: 1.9
CLASS "R-C"

MAX WIDTH OF TRENCH AT 12" ABOVE TOP OF PIPE
6" THRU 12" PIPE - 30" WIDE
15" THRU 36" PIPE - O.D. +16"
42" THRU 60" PIPE - O.D. +20"
OVER 60" PIPE - OUTSIDE DIAMETER OF PIPE +24"
MIN WIDTH OF TRENCH 12" ABOVE THE TOP OF PIPE SHALL BE 6" ON EACH SIDE OF PIPE

RIGID PIPE BEDDING DETAILS



CLASS "F-I"

CLASS "F-II"

CLASS "F-III"

MINIMUM WIDTH OF TRENCH AT 12" ABOVE TOP OF PIPE	
PIPE O.D.	MINIMUM TRENCH WIDTH
UP TO 16"	O.D. + 16"
GREATER THAN 16"	O.D. x 1.25 PLUS 12"

FLEXIBLE PIPE BEDDING DETAILS

PROJECT MANAGER: FIELD BOOK INFORMATION: PLOTTED 7/16/2013 1:19:38 PM BY: m/omagan

ISSUED FOR: DATE: BY:

JOB NO.:

SHEET:

MD-1

VAN BUREN CHARTER TOWNSHIP

MISCELLANEOUS DETAILS (MD-1)

MISCELLANEOUS DETAILS (MD-1 of 1)

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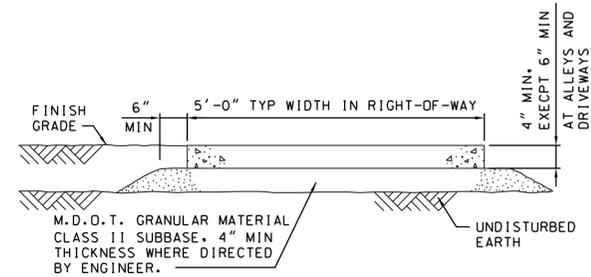
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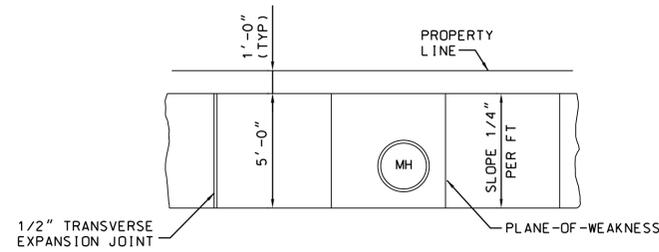
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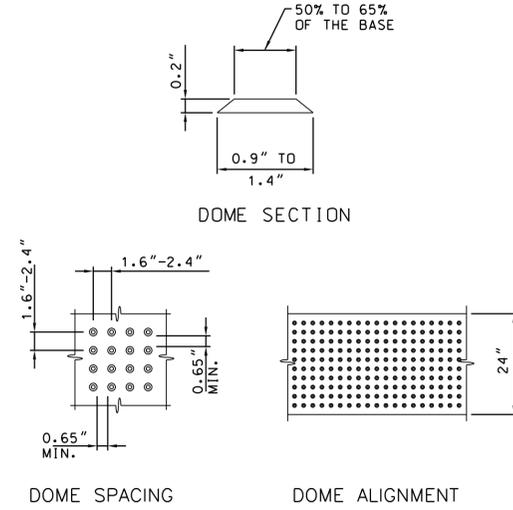
PROJECT MANAGER: C:\new_work\adms36623\CAD-PLT\5-SW1.dgn FIELD BOOK INFORMATION: PLOTTED 5/14/2016 11:51:30 AM BY: C:\new_work\adms36623\CAD-PLT\5-SW1.dgn



TYPICAL SECTION
N.T.S.



TYPICAL PLAN IN RIGHT-OF-WAY
N.T.S.



DETECTABLE WARNING DETAILS
N.T.S.

NOTES:

- ONE-HALF INCH TRANSVERSE EXPANSION JOINTS SHALL BE PLACED THROUGH THE SIDEWALK AT UNIFORM INTERVALS OF NOT MORE THAN 50 FEET. ONE-HALF INCH EXPANSION JOINT SHALL ALSO BE PLACED BETWEEN THE SIDEWALK AND ABUTTING PARALLEL CURB, BUILDINGS, RIGID STRUCTURES, CONCRETE DRIVES AND CONCRETE DRIVE APPROACHES. ONE INCH EXPANSION JOINTS SHALL BE PLACED BETWEEN SIDEWALK RAMP AND BACK OF CURB.
- PLANE-OF-WEAKNESS JOINTS SHALL BE PLACED EVERY 5 FEET AND BE PRODUCED BY USE OF SLAB DIVISION FORMS EXTENDING TO THE FULL DEPTH OF CONCRETE OR BY CUTTING JOINTS IN THE CONCRETE AFTER FLOATING, TO A DEPTH OF NOT LESS THAN ONE-FOURTH THE THICKNESS OF THE SIDEWALK. THE CUT JOINTS SHALL BE NOT LESS THAN 1/8 INCH NOR MORE THAN 1/4 INCH IN WIDTH AND SHALL BE FINISHED SMOOTH AND TRUE TO LINE.

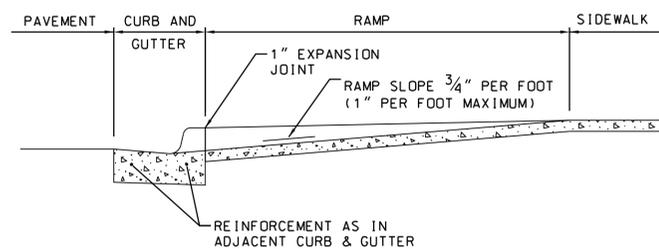
SIGN NOTES:

- SIGN PANEL SHALL BE 0.080 INCH THICK, ALUMINUM SHEET, TYPE 6061-T6 (MDOT TYPE III).
- HOLES IN SIGN POSTS SHALL BE CONTINUOUS 3/4\"/>

TYPE	BACKGROUND	LEGEND
A.	Reflectorized	Reflectorized
B.	Reflectorized	Non-Reflectorized
C.	Non-Reflectorized	Reflectorized

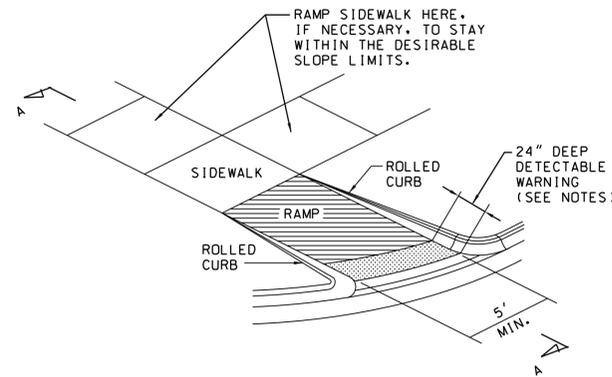
SIDEWALK RAMP NOTES:

- ALL SIDEWALK RAMP AS CALLED FOR ON THE PLANS SHALL HAVE DETECTABLE WARNINGS.
- DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH THE ADJACENT WALKING SURFACE.
- DETECTABLE WARNING SHALL BE MODULAR PLASTIC TILE, POLYMER CONCRETE TILE OR OTHER SIMILAR TILE EMBEDDED INTO THE FRESH CONCRETE, AS APPROVED BY THE ENGINEER; OR A STAMPED PATTERN IN THE FRESH CONCRETE WITH INTEGRAL COLOR (NOT SHAKE-ON COLOR). ADHESIVE APPLIED DETECTABLE WARNINGS ARE NOT ACCEPTABLE.
- ALL DETECTABLE WARNINGS SHALL HAVE SKID RESISTANT SURFACE.
- SYSTEM AND COLOR SHALL BE APPROVED BY THE ENGINEER PRIOR TO BEGINNING WORK.



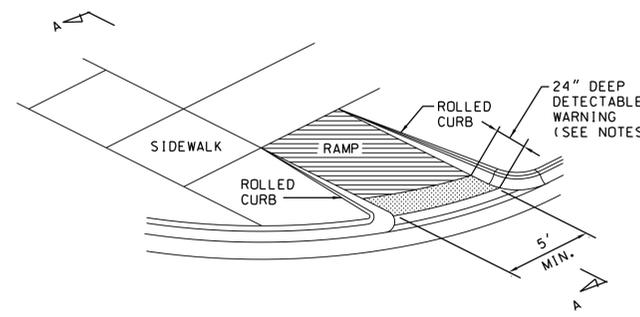
SECTION A-A
(TYPICAL ALL RAMP DETAILS)

TYPICAL PLAN IN RIGHT-OF-WAY
N.T.S.



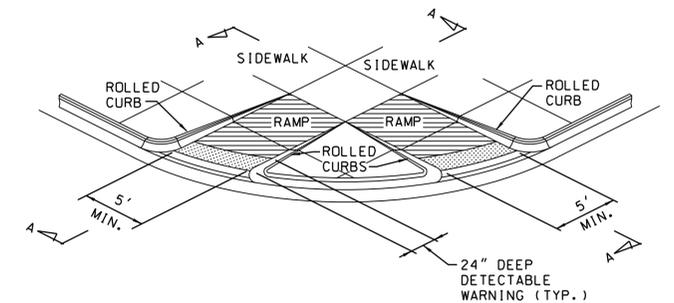
SIDEWALK RAMP TYPE 1

TYPICAL PLAN IN RIGHT-OF-WAY
N.T.S.



SIDEWALK RAMP TYPE 2

SIDEWALK RAMP DETAILS
N.T.S.



SIDEWALK RAMP TYPE 4
(TWO RAMP ARE SHOWN)

SIDEWALK RAMP TYPE 4
N.T.S.

REV	DATE	DESCRIPTION	BY

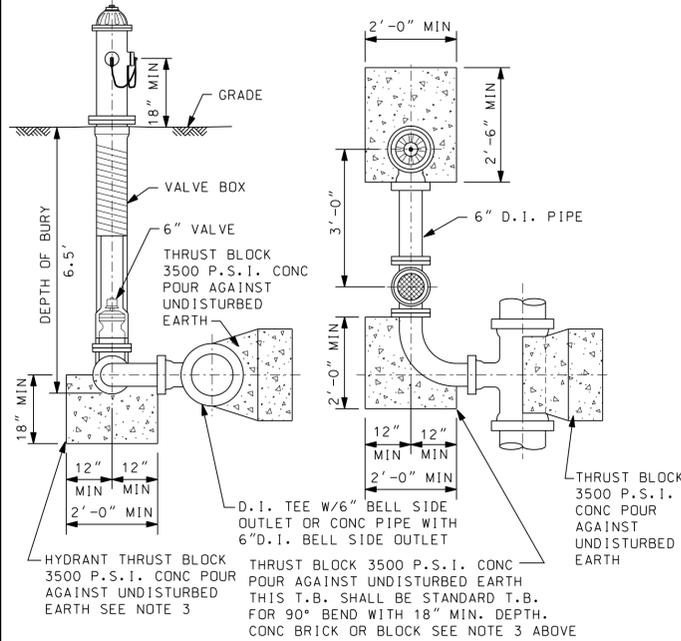
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 STANDARD SIDEWALK DETAILS (SW-1)

ISSUED FOR:	DATE:	BY:
JOB NO.		
SHEET	SW-1	

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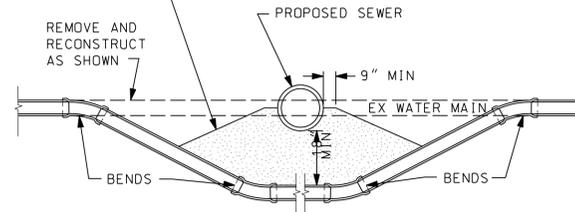
- NOTES:
1. INSTALL ADDITIONAL FITTINGS & SPIGOT PIPE AS NECESSARY BETWEEN WATER MAIN & VALVE BOX TO ADJUST FOR PROPER LOCATION AND GRADE OF HYDRANT.
 2. VERTICAL ANCHORAGES WILL BE REQUIRED ON ALL VERTICAL HYDRANT BENDS IN EXCESS OF 11 1/4°.
 3. WHERE HYDRANTS ARE INSTALLED ON EXISTING MAINS THAT ARE TO BE PLACED BACK INTO SERVICE IMMEDIATELY, PLACE CONCRETE BRICK OR BLOCK TO UNDISTURBED EARTH AND ENCASE WITH CONCRETE OR USE RESTRAINING GLANDS.



**STANDARD FIRE HYDRANT ASSEMBLY
CLOSE COUPLE TYPE**
N.T.S.

COMPACTED SAND OR FLOWABLE FILL SHALL EXTEND FOR 9" EACH SIDE OF PROPOSED PIPE AND SHALL SLOPE OUT AT 1 ON 4 SLOPE TO BOTTOM OF TRENCH, OR AS DIRECTED BY ENGINEER

NOTE:
FOR ANCHORAGE DETAILS AT BENDS SEE WATER DETAIL SHT-WM 2

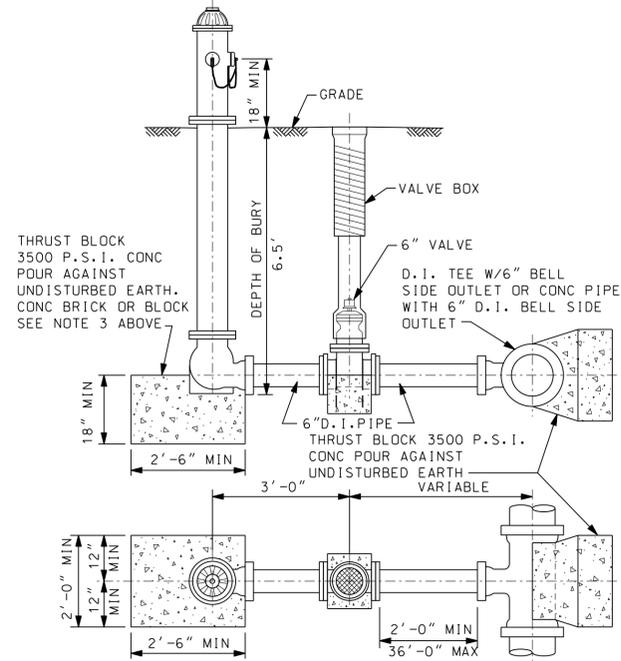


NOTE:
FOR BEDDING OF WATER MAIN SEE STANDARD SAND ENCASMENT CLASS "F-III" THIS SHT.

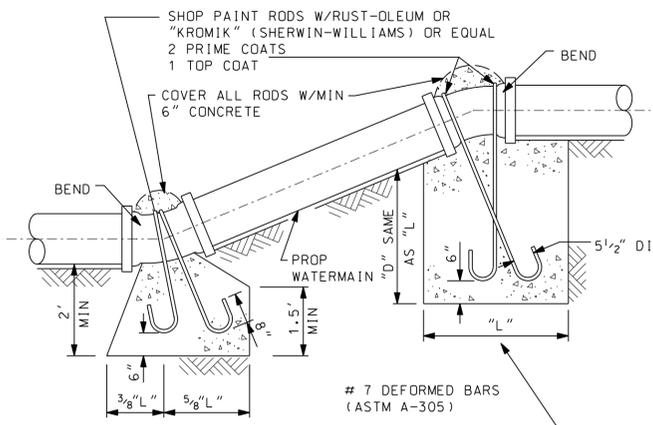
RELOCATION OF WATER MAIN
N.T.S.

- WATER MAIN NOTES**
1. ALL WATER SYSTEM CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND GENERAL SPECIFICATION OF THE AGENCY OR AGENCIES HAVING JURISDICTION OF THE WATER SUPPLY SYSTEM AND CONSTRUCTION AREA.
 2. WATER MAINS SHALL NOT BE CONSTRUCTED UNDER SIDEWALKS OR ROAD PAVEMENT AREAS.
 3. ALL SURFACE STRUCTURES, SUCH AS HYDRANTS, GATE WELLS AND VALVE BOXES SHALL BE SET TO GRADE OR AS INDICATED ON THE PLANS.
 4. FIRE HYDRANTS ARE TO BE INSTALLED PLUMB AND HAVE THEIR NOZZLES AS DETERMINED BY THE ENGINEER.
 5. ALL FITTINGS SHALL BE DUCTILE IRON, PRESSURE RATING 350 P.S.I., CONFORMING TO ANSI/AWWA C 153/A21.53 COMPACT FITTINGS WITH DOUBLE THICKNESS CEMENT MORTAR LINING AND COAL TAR ENAMEL COATING INSIDE AND OUTSIDE.
 6. GATE WELLS AND OTHER WATER MAIN STRUCTURES SHALL NOT BE CONSTRUCTED IN DRIVEWAYS, DRIVE APPROACHES, OR SIDEWALKS.
 7. PROVIDE 7-FOOT MINIMUM COVER BELOW EXISTING PAVEMENT CENTERLINE OR GROUND AT WATER MAIN LOCATION, WHICHEVER IS LOWEST, WHEN PROPOSED WATER MAIN IS WITHIN 32 FEET OF CENTERLINE ON SECTION LINE ROADS, OR WITHIN 19 FEET OF CENTERLINE ON 1/4 LINE ROADS. SEVEN FEET COVER SHALL ALSO BE REQUIRED AT OTHER LOCATIONS AS NOTED ON THE PLAN. PROVIDE 6-FOOT MINIMUM COVER BELOW EXISTING ROAD CENTERLINE OR GROUND AT WATER MAIN LOCATION, WHICHEVER IS LOWEST, AT ALL OTHER LOCATIONS UNLESS OTHERWISE NOTED.
 8. PLACE NATURAL BANK RUN SAND BACKFILL WITHIN THREE FEET OF ALL STRUCTURES, INCLUDING VALVE WELLS, FIRE HYDRANTS, ETC.
 9. ALL WATER MAIN PIPE SHALL HAVE CLASS III BEDDING UNLESS OTHERWISE NOTED ON THE PLANS. SEE SHEET MD-1.
 10. ALL PRECAST PRODUCTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478.
 11. CONTRACTOR SHALL BAG ALL NEW FIRE HYDRANTS UNTIL THE WATER MAIN IS ACCEPTED FOR SERVICE.
 12. WHEN THE FIRE HYDRANT IS BEING INSTALLED, THE 6-INCH DIAMETER FIRE HYDRANT VALVE SHALL BE INSTALLED IN THE FULL OPEN POSITION.
 13. WATER MAIN TO BE PLACED LEVEL THROUGH ALL GATE WELLS.
 14. ALL WATER SYSTEM BOLTS ARE TO BE COR-BLUE, MASTIC COATED, OR SPRAY PAINTED WITH UNDER COATING.
 15. A FIRE HYDRANT SHOULD BE PLACED AT THE END OF ALL DEAD END WATER MAIN.

- NOTES:
1. INSTALL ADDITIONAL FITTINGS, BENDS & SPIGOT PIPE AS NECESSARY BETWEEN WATER MAIN & VALVE BOX TO ADJUST FOR PROPER LOCATION AND GRADE OF HYDRANT.
 2. VERTICAL ANCHORAGES WILL BE REQUIRED ON ALL VERTICAL HYDRANT BENDS IN EXCESS OF 11 1/4°.
 3. WHERE HYDRANTS ARE INSTALLED ON EXISTING MAINS THAT ARE TO BE PLACED BACK INTO SERVICE IMMEDIATELY, PLACE CONCRETE BRICK OR BLOCK TO UNDISTURBED EARTH AND ENCASE WITH CONCRETE OR USE RESTRAINING GLANDS.

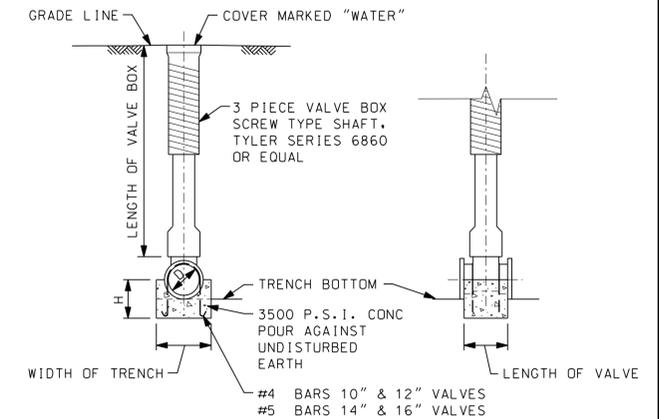


STANDARD FIRE HYDRANT ASSEMBLY "T" TYPE
N.T.S.



NOTE:
4" MIN COVER ON ALL DITCH CROSSINGS, BENDS IF REQUIRED TO BE PLACED PER VERTICAL CONCRETE TO BE 3500 P.S.I.

VERTICAL REACTION BLOCKING
N.T.S.



SIZE OF PIPE	H
6"	6"
8"	8"
10"	10"
12"	12"

VALVE BLOCK AND BOX DETAIL
N.T.S.

PROJECT MANAGER: FIELD BOOK INFORMATION: PLOTTED 5/14/2016 11:49:52 AM BY: Crenshaw

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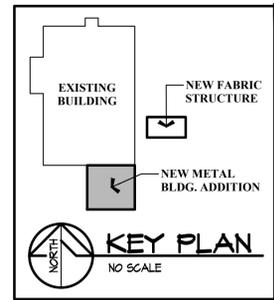
JOB NO.:

SHEET:

WM-2

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EXISTING BUILDING



PV+A

PUCCI + VOLLMAR ARCHITECTS, PC

ARCHITECTURE + DESIGN + PLANNING

508 E. GRAND RIVER AVE., SUITE 100B, BRIGHTON, MI 48116-1566

PHONE: (810) 225-2930

www.pv-a.com

FOR:

CONTRACTING RESOURCES

CONTACT: CRAIG DUFFONG

8273 GRAND RIVER RD.

SUITE #150

BRIGHTON, MI 48114

810-224-4920



BUILDING CODE NOTES:

THE EXISTING BUILDING IS AN UNLIMITED AREA BUILDING.

THE EXISTING BUILDING IS SPRINKLED.

THE ADDITION IS SPRINKLED.

THE EXISTING FIRE ALARM SYSTEM WILL BE EXTENDED INTO THE ADDITION.

PROJECT: **CONSTELLUM ADDITION**

6331 SCHOOVER STREET

VAN BUREN TWP., MICHIGAN

SHEET TITLE: **ADDITION FLOOR PLAN**

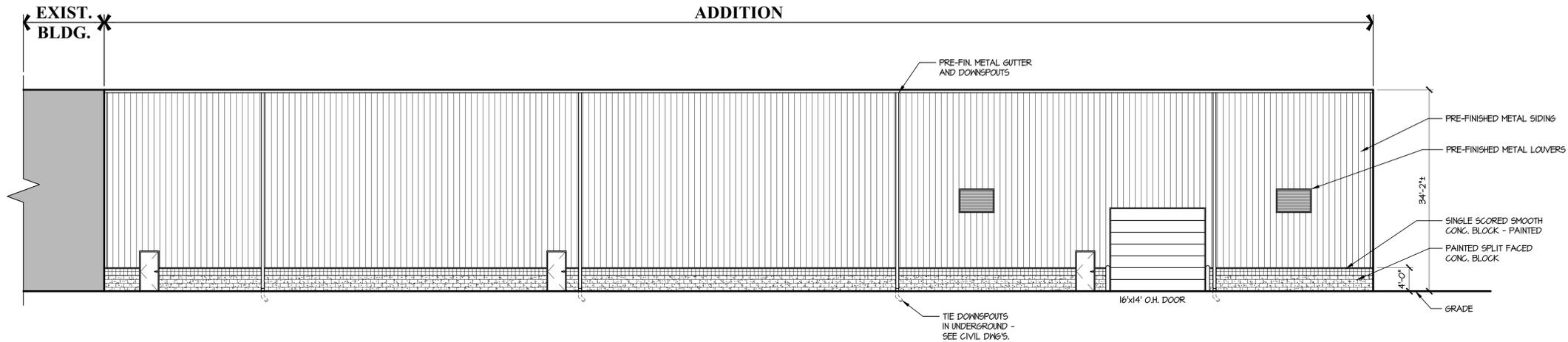
DATE:	4-12-2018	SITE PLAN APPROVAL	ISSUED FOR:

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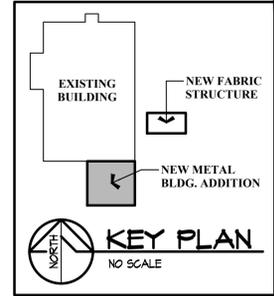
DRAWN BY: KY

APPROVED BY: KY

PROJECT: 1812



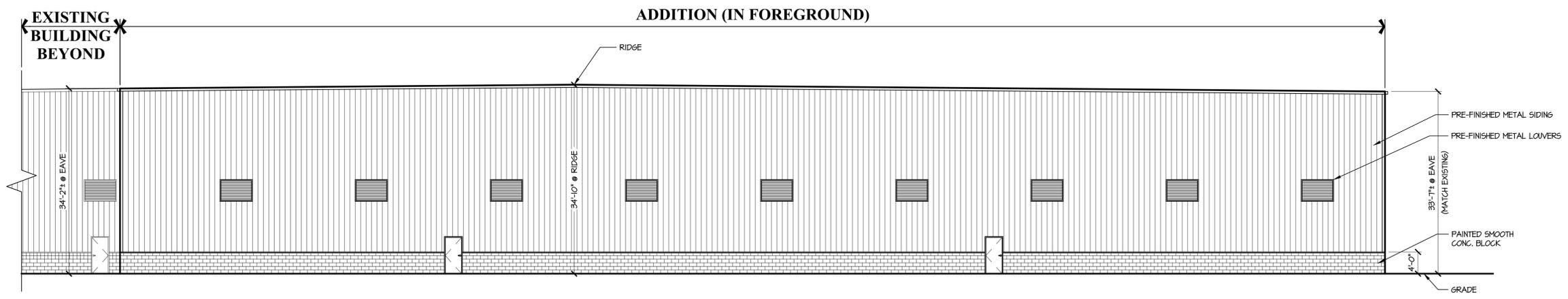
ADDITION WEST ELEVATION
SCALE: 3/32" = 1'-0"



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MATERIAL NOTE:
 ALL MATERIALS SHALL MATCH EXISTING FOR COLOR AND TEXTURE.

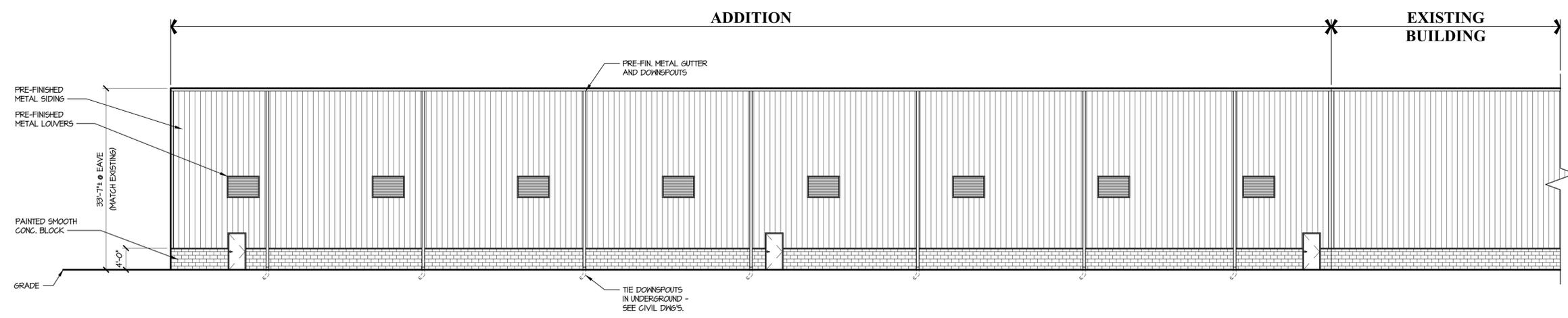
FOR:
CONTRACTING RESOURCES
 CONTACT: CRAIG DUFFONG
 8273 GRAND RIVER RD.
 SUITE #150
 BRIGHTON, MI 48114
 810-224-4820



ADDITION SOUTH ELEVATION
SCALE: 3/32" = 1'-0"



PROJECT: **CONSTELLUM ADDITION**
 6331 SCHOONER STREET
 VAN BUREN TWP., MICHIGAN
 SHEET TITLE: **EXTERIOR ELEVATIONS OF THE ADDITION**



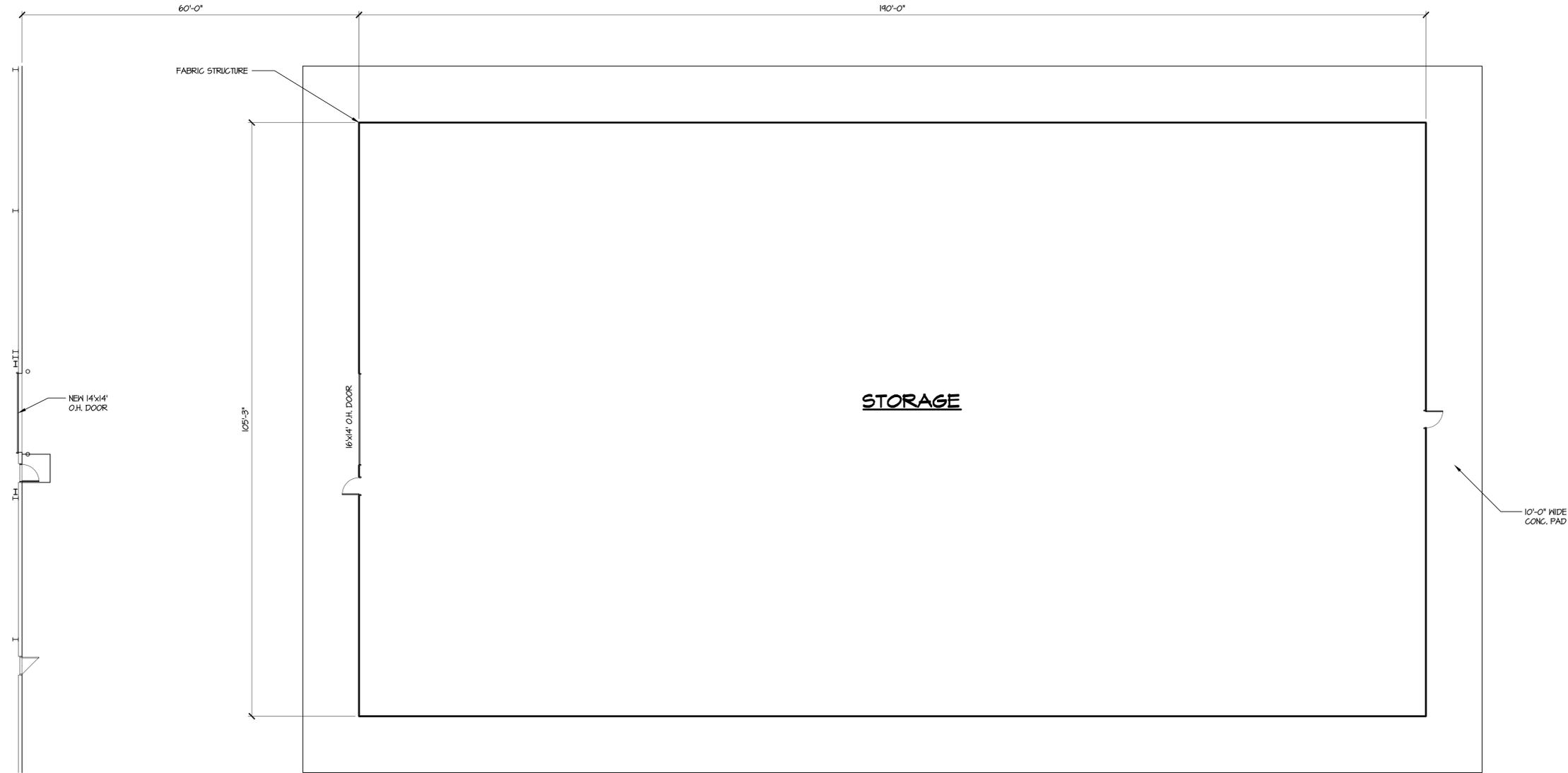
ADDITION EAST ELEVATION
SCALE: 3/32" = 1'-0"

DATE: 4-12-2018
 DRAWN BY: KY
 APPROVED BY: KY
 PROJECT: 1812
 SHEET: **A2**

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DATE: 4-12-2018
 DRAWN BY: KY
 APPROVED BY: KY
 PROJECT: 1812
 SHEET: **A2**

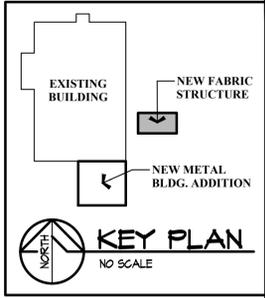
EXISTING BUILDING



FABRIC STRUCTURE FLOOR PLAN

SCALE: 3/32" = 1'-0"

20,000 65F



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FOR:
CONTRACTING RESOURCES
 CONTACT: CRAIG DUFFONG
 8275 GRAND RIVER RD.
 SUITE #150
 BRIGHTON, MI 48114
 810-225-4820



PROJECT: **CONSTELLUM ADDITION**
 6331 SCHOOVER STREET
 VAN BUREN TWP., MICHIGAN

SHEET TITLE: **ADDITION FLOOR PLAN**

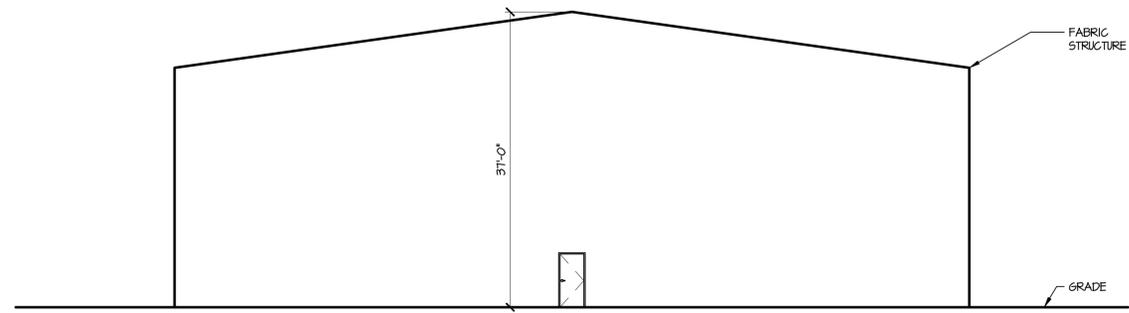
DATE:	4-12-2018	SITE PLAN APPROVAL	ISSUED FOR:

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DRAWN BY: KY
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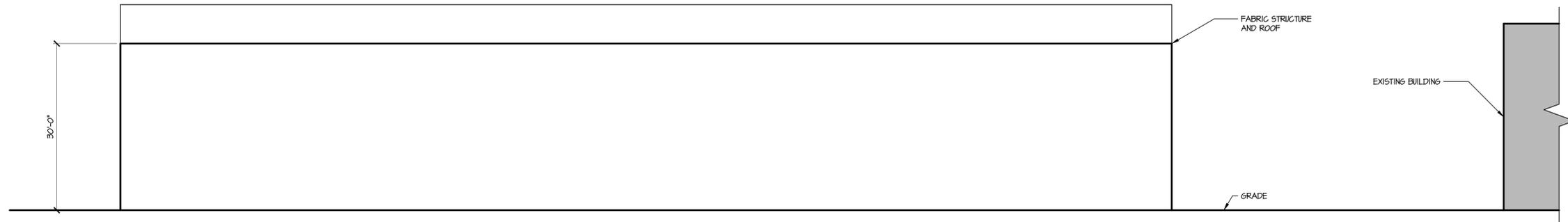
PROJECT: 1812

SHEET:
A3



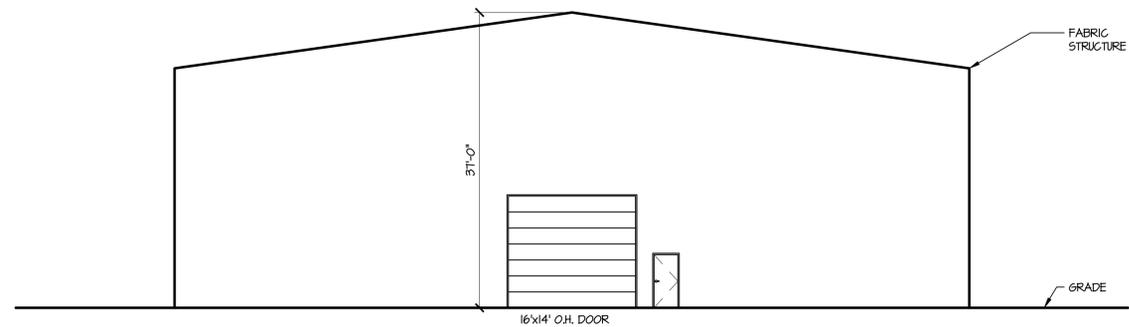
FABRIC STRUCTURE EAST ELEVATION

SCALE: 3/32" = 1'-0"



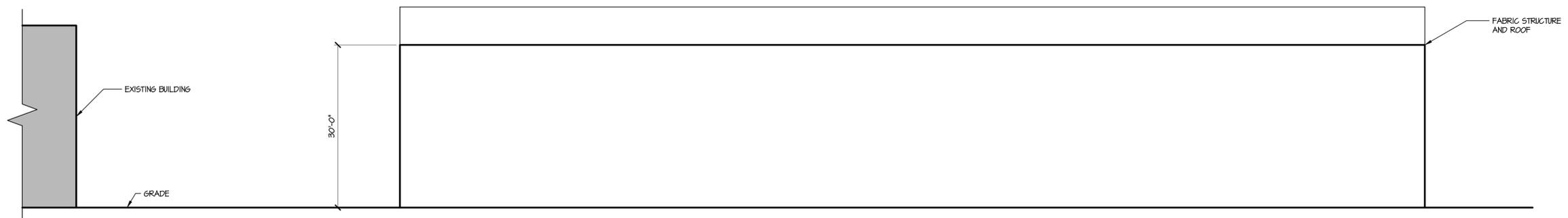
FABRIC STRUCTURE NORTH ELEVATION

SCALE: 3/32" = 1'-0"



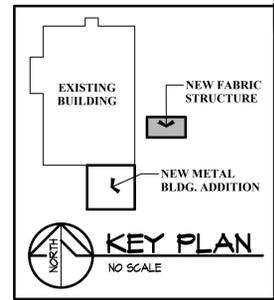
FABRIC STRUCTURE WEST ELEVATION

SCALE: 3/32" = 1'-0"



FABRIC STRUCTURE SOUTH ELEVATION

SCALE: 3/32" = 1'-0"



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CONTRACTING RESOURCES
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 8273 GRAND RIVER RD.
 SUITE #150
 BRIGHTON, MI 48114
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PROJECT: **CONSTELLUM ADDITION**
 6331 SCHÖNER STREET
 VAN BUREN TWP., MICHIGAN

SHEET TITLE: **EXTERIOR ELEVATIONS OF THE FABRIC STRUCTURE**

DATE:	4-12-2018
ISSUED FOR:	SITE PLAN APPROVAL

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 APPROVED BY: KY

PROJECT: 1812
 SHEET: **A4**